

## **\***

## SEQUENCE LISTING

| <110> E                   | Bristol-Myers Squibb Company  |     |
|---------------------------|---|-----|
| <120>                     | HUMAN SINGLE NUCLEOTIDE POLYMORPHISMS   |     |
| <130>                     | D0053NP   |     |
| <150><br><151>            | 60/251,015<br>2000-12-04  |     |
| <150><br><151>            | 60/263,678<br>2001-01-23  |     |
| <150><br><151>            | 60/273,037<br>2001-03-02  |     |
| <160>                     | 1579  |     |
| <170>                     | PatentIn version 3.0  |     |
| <210><211><211><212><213> | 1<br>3428<br>DNA<br>homo sapiens  |     |
| <220><br><221><br><222>   | CDS (265)(2283)   |     |
| <400><br>cacccta          | 1<br>atcc tacactacta ggaacttgca cagtccgcct cgggcagccc aaagctcctc  | 60  |
| tgccca                    | ccct ggctcccaaa accctccaaa acaaaagacc agaaaagcac tctccaccca   | 120 |
| gcagcca                   | aaac gcctccttct tgacgccagc ccccaccctc tgtctgctcg agcccaggaa   | 180 |
| aggcct                    | gaag gaacaggccg gggaaggagc cctccctctc tcccttgtcc ctccatccac   | 240 |
| ccagcg                    | met Ala Arg Ala His Trp Gly Cys Cys  1 5  | 291 |
|                           | g ctg gtc ctc ctc tgt gct tgt gcc tgg ggc cac aca aag cca<br>p Leu Val Leu Leu Cys Ala Cys Ala Trp Gly His Thr Lys Pro<br>15 20 25  | 339 |
| ctg ga<br>Leu As          | c ctt gga ggg cag gat gtg aga aat tgt tcc acc aac ccc cct<br>p Leu Gly Gln Asp Val Arg Asn Cys Ser Thr Asn Pro Pro<br>30 35 40      | 387 |
|                           | t cca gtt act gtg gtc aat acc aca atg tca ctc aca gcc ctc<br>eu Pro Val Thr Val Val Asn Thr Thr Met Ser Leu Thr Ala Leu<br>45 50 55 | 435 |
|                           | ng cag atg cag acc cag aat ctc tca gcc tac atc atc cca ggc<br>n Gln Met Gln Thr Gln Asn Leu Ser Ala Tyr Ile Ile Pro Gly             | 483 |





60 65 70

| aca<br>Thr        | gat<br>Asp<br>75  | gct<br>Ala        | cac<br>His        | atg<br>Met        | aac<br>Asn        | gag<br>Glu<br>80  | tac<br>Tyr        | atc<br>Ile        | ggc<br>Gly        | caa<br>Gln        | cat<br>His<br>85  | gac<br>Asp        | gag<br>Glu        | agg<br>Arg        | cgt<br>Arg        | 5 | 31  |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|---|-----|
| gcg<br>Ala<br>90  | tgg<br>Trp        | att<br>Ile        | aca<br>Thr        | ggc<br>Gly        | ttt<br>Phe<br>95  | aca<br>Thr        | Gly<br>ggg        | tct<br>Ser        | gca<br>Ala        | gga<br>Gly<br>100 | act<br>Thr        | gca<br>Ala        | gtg<br>Val        | gtg<br>Val        | act<br>Thr<br>105 | 5 | 79  |
| atg<br>Met        | aag<br>Lys        | aaa<br>Lys        | gca<br>Ala        | gct<br>Ala<br>110 | gtc<br>Val        | tgg<br>Trp        | acc<br>Thr        | gac<br>Asp        | agt<br>Ser<br>115 | cgc<br>Arg        | tac<br>Tyr        | tgg<br>Trp        | act<br>Thr        | cag<br>Gln<br>120 | gct<br>Ala        | 6 | 527 |
| gag<br>Glu        | cgg<br>Arg        | caa<br>Gln        | atg<br>Met<br>125 | gac<br>Asp        | tgt<br>Cys        | aat<br>Asn        | tgg<br>Trp        | gag<br>Glu<br>130 | ctc<br>Leu        | cat<br>His        | aag<br>Lys        | gaa<br>Glu        | gtt<br>Val<br>135 | ggc<br>Gly        | acc<br>Thr        | 6 | 575 |
| act<br>Thr        | cct<br>Pro        | att<br>Ile<br>140 | gtc<br>Val        | acc<br>Thr        | tgg<br>Trp        | ctc<br>Leu        | ctc<br>Leu<br>145 | acc<br>Thr        | gag<br>Glu        | att<br>Ile        | ccc<br>Pro        | gct<br>Ala<br>150 | gga<br>Gly        | Gly               | cgt<br>Arg        | 7 | 723 |
| gtg<br>Val        | ggt<br>Gly<br>155 | ttt<br>Phe        | gac<br>Asp        | ccc<br>Pro        | ttc<br>Phe        | ctc<br>Leu<br>160 | ttg<br>Leu        | tcc<br>Ser        | att<br>Ile        | gac<br>Asp        | acc<br>Thr<br>165 | tgg<br>Trp        | gag<br>Glu        | agt<br>Ser        | tat<br>Tyr        | 7 | 771 |
| gat<br>Asp<br>170 | ctg<br>Leu        | gcc<br>Ala        | ctc<br>Leu        | caa<br>Gln        | ggc<br>Gly<br>175 | tct<br>Ser        | aac<br>Asn        | aga<br>Arg        | cag<br>Gln        | ctg<br>Leu<br>180 | gtg<br>Val        | tcc<br>Ser        | atc<br>Ile        | aca<br>Thr        | acc<br>Thr<br>185 | 8 | 319 |
| aat<br>Asn        | ctt<br>Leu        | gtg<br>Val        | gac<br>Asp        | ctg<br>Leu<br>190 | gta<br>Val        | tgg<br>Trp        | gga<br>Gly        | tca<br>Ser        | gag<br>Glu<br>195 | agg<br>Arg        | cca<br>Pro        | ccg<br>Pro        | gtt<br>Val        | cca<br>Pro<br>200 | aat<br>Asn        | 8 | 867 |
| caa<br>Gln        | ccc<br>Pro        | att<br>Ile        | tat<br>Tyr<br>205 | Ala               | ctg<br>Leu        | cag<br>Gln        | gag<br>Glu        | gca<br>Ala<br>210 | Phe               | aca<br>Thr        | Gly               | agc<br>Ser        | act<br>Thr<br>215 | tgg<br>Trp        | cag<br>Gln        | 9 | 915 |
| gag<br>Glu        | aaa<br>Lys        | gta<br>Val<br>220 | tct<br>Ser        | ggc               | gtc<br>Val        | cga<br>Arg        | agc<br>Ser<br>225 | Gln               | atg<br>Met        | cag<br>Gln        | aag<br>Lys        | cat<br>His<br>230 | Gln               | aag<br>Lys        | gtc<br>Val        |   | 963 |
| ccg<br>Pro        | act<br>Thr<br>235 | Ala               | gtc<br>Val        | ctt<br>Leu        | ctg<br>Leu        | tcg<br>Ser<br>240 | Ala               | ctt<br>Leu        | gag<br>Glu        | gag<br>Glu        | acg<br>Thr<br>245 | Ala               | tgg<br>Trp        | ctc<br>Leu        | ttc<br>Phe        | 1 | 011 |
| aac<br>Asn<br>250 | Leu               | . cga<br>. Arg    | gcc<br>Ala        | agt<br>Ser        | gac<br>Asp<br>255 | Ile               | ccc               | tat<br>Tyr        | aac<br>Asn        | ccc<br>Pro<br>260 | Phe               | ttc<br>Phe        | tat<br>Tyr        | tcc<br>Ser        | tac<br>Tyr<br>265 | 1 | 059 |
| acg<br>Thr        | ctg<br>Leu        | ctc<br>Leu        | aca<br>Thr        | gac<br>Asp<br>270 | Ser               | tct<br>Ser        | att<br>Ile        | agg<br>Arg        | ttg<br>Leu<br>275 | Phe               | gca<br>Ala        | aac<br>Asn        | aag<br>Lys        | agt<br>Ser<br>280 | cgc<br>Arg        | 1 | 107 |
| ttt<br>Phe        | agc<br>Ser        | tcc<br>Ser        | gaa<br>Glu<br>285 | ı Thr             | ttg<br>Leu        | agc<br>Ser        | tat<br>Tyr        | ctg<br>Leu<br>290 | ı Asn             | tcc<br>Ser        | agt<br>Ser        | tgc<br>Cys        | aca<br>Thr<br>295 | Gly               | ccc<br>Pro        | 1 | 155 |
|                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |   |     |

|   |   |   |   | gag<br>Glu        |   |   |      |   |   |   |   |   | 12 | 203 |
|---|---|---|---|-------------------|---|---|------|---|---|---|---|---|----|-----|
| - |   | _ |   | gat<br>Asp        |   |   |      |   |   |   |   |   | 12 | 251 |
|   |   |   |   | gaa<br>Glu<br>335 |   |   |      |   |   |   |   |   | 12 | 299 |
|   |   |   |   | atg<br>Met        |   |   |      |   |   |   |   |   | 13 | 347 |
| _ | - |   | _ | gcc<br>Ala        | - |   | <br> | _ | - |   | _ | - | 13 | 395 |
|   |   |   |   | ctg<br>Leu        |   |   |      |   |   |   |   |   | 14 | 443 |
|   |   |   |   | gag<br>Glu        |   |   |      |   |   |   |   |   | 14 | 491 |
|   |   |   |   | agt<br>Ser<br>415 |   | _ |      |   | - | _ |   | - | 1! | 539 |
|   |   |   |   | tac<br>Tyr        |   |   |      |   |   |   |   |   | 1! | 587 |
|   |   |   |   | tac<br>Tyr        |   |   |      |   |   |   |   |   | 1  | 635 |
|   |   |   |   | acc<br>Thr        |   |   |      |   |   |   |   |   | 1  | 683 |
|   |   |   |   | tat<br>Tyr        |   |   |      |   |   |   |   |   | 1  | 731 |
|   |   |   |   | ccc<br>Pro<br>495 |   |   |      |   |   |   |   |   | 1  | 779 |
|   |   |   |   | ttg<br>Leu        |   |   |      |   |   |   |   |   | 1  | 827 |

| aca ggc cac ggc att ggc aac ttc ctg tgt gtg cat gag tgg cca gtg Thr Gly His Gly Ile Gly Asn Phe Leu Cys Val His Glu Trp Pro Val 525 530 535           | 1875 |
|---|------|
| gga ttc cag tcc aac aac atc gct atg gcc aag ggc atg ttc act tcc Gly Phe Gln Ser Asn Asn Ile Ala Met Ala Lys Gly Met Phe Thr Ser 540 545 550           | 1923 |
| att gaa cct ggt tac tat aag gat gga gaa ttt ggg atc cgt ctc gaa<br>Ile Glu Pro Gly Tyr Tyr Lys Asp Gly Glu Phe Gly Ile Arg Leu Glu<br>555 560 565     | 1971 |
| gat gtg gct ctc gtg gta gaa gca aag acc aag tac cca ggg gag cta<br>Asp Val Ala Leu Val Val Glu Ala Lys Thr Lys Tyr Pro Gly Glu Leu<br>570 575 580 585 | 2019 |
| cct gac ctt gtg gta tca ttt gtg ccc tat gac cgg aac ctc atc gat<br>Pro Asp Leu Val Val Ser Phe Val Pro Tyr Asp Arg Asn Leu Ile Asp<br>590 595 600     | 2067 |
| gtc agc ctg ctg tct ccc gag cat ctc cag tac ctg aat cgc tac tac Val Ser Leu Leu Ser Pro Glu His Leu Gln Tyr Leu Asn Arg Tyr Tyr 605 610 615           | 2115 |
| cag acc atc cgg gag aag gtg ggt cca gag ctg cag agg cgc cag cta Gln Thr Ile Arg Glu Lys Val Gly Pro Glu Leu Gln Arg Arg Gln Leu 620 625 630           | 2163 |
| cta gag gag ttc gag tgg ctt caa cag cac aca gag ccc ctg gcc gcc<br>Leu Glu Glu Phe Glu Trp Leu Gln Gln His Thr Glu Pro Leu Ala Ala<br>635 640 645     | 2211 |
| agg gcc cca gac acc gcc tcc tgg gcc tct gtg tta gtg gtc tcc acc<br>Arg Ala Pro Asp Thr Ala Ser Trp Ala Ser Val Leu Val Val Ser Thr<br>650 665         | 2259 |
| ctt gcc atc ctt ggc tgg agt gtc tagaggctcc agactetect gttaaceetc<br>Leu Ala Ile Leu Gly Trp Ser Val<br>670  | 2313 |
| catctagatg gggggctccc ttgcttagct cccctcaccc tgcactgaac ataccccaag   | 2373 |
| agcccctgct ggcccattgc ctagaaacct ttgcattcat cctccttctc caagacctat   | 2433 |
| ggagaaggtc ccaggcccca ggaaacacag ggcttcttgg ccccagatgg cacctccctg   | 2493 |
| cacccgggg ttgtatacca caccctgggc ccctaatccc aggccccgaa ataggaaagc  | 2553 |
| cagctagtct cttctcttct gtgatctcag taggcctaac ctataaccta acacagactg   | 2613 |
| ctacagctgc teceeteeeg ecaaacaaag eeceaagaaa acaatgeeee taccaeecaa   | 2673 |
| gggtgccatg gtcccgggaa aacccaacct gtcaccgcgt gttgggcgta accagaactg   | 2733 |
| ttccccccca ccagggctta aaaatcgccc ccacttttta accatcgtcc attaaccacc   | 2793 |
| tggtgggcat agccagagct gttcgaaccc agccagggat gaaaaatcaa cccccgacat   | 2853 |

| ggaacccatg attcct | aaac ccggggtagg  | ttccatgcca | agtaacagca | gagggagtta | 2913 |
|-------------------|------------------|------------|------------|------------|------|
| agccatagga atttgg | gctgt ggagtaagag | ggaatgcggt | gaggcagtgt | ggaatatgac | 2973 |
| cctaccagag gttgga | agaac aaacttgggc | agccggaacc | cgtcactatt | ttagattcct | 3033 |
| ggcattcgag gagcco | ctttg aactttccaa | agtgcagcca | cagctacaat | gctgttaaat | 3093 |
| cctcccacat ttctto | gatg cccttcacc   | ttgtgtggac | agtgtctggt | ttccccattt | 3153 |
| tacagacagg aaaact | gage tteagacagg  | gggtgggctt | tgcctaagga | cacacaaatt | 3213 |
| tggttgggag ttgatg | ggggc cagatgagcc | agcattccag | ctgtttcacc | cttcagcaac | 3273 |
| atgcagagtc cctgag | geeca ecteccagee | ctctcctcat | tctctgaacc | cactgtggtg | 3333 |
| agaagaattt gctcc  | ggcca aattggccgt | tagccacctg | ggtccacatc | ctgctaagac | 3393 |
| gtttaaaaca gcctaa | acaaa gacacttgcc | tgtgg      |            |            | 3428 |

<210> 2 <211> 673

<212> PRT

<213> homo sapiens

<400> 2

Ala Cys Ala Trp Gly His Thr Lys Pro Leu Asp Leu Gly Gly Gln Asp 20 25 30

Val Arg Asn Cys Ser Thr Asn Pro Pro Tyr Leu Pro Val Thr Val Val 35 40 45

Asn Thr Thr Met Ser Leu Thr Ala Leu Arg Gln Gln Met Gln Thr Gln 50 55 60

Asn Leu Ser Ala Tyr Ile Ile Pro Gly Thr Asp Ala His Met Asn Glu 65 70 75 80

Tyr Ile Gly Gln His Asp Glu Arg Arg Ala Trp Ile Thr Gly Phe Thr 85 90 95

Gly Ser Ala Gly Thr Ala Val Val Thr Met Lys Lys Ala Ala Val Trp \$100\$ \$105\$ \$110

Thr Asp Ser Arg Tyr Trp Thr Gln Ala Glu Arg Gln Met Asp Cys Asn 115 120 125

Trp Glu Leu His Lys Glu Val Gly Thr Thr Pro Ile Val Thr Trp Leu 130 135 140

Leu Thr Glu Ile Pro Ala Gly Gly Arg Val Gly Phe Asp Pro Phe Leu 145 150 155 160

Leu Ser Ile Asp Thr Trp Glu Ser Tyr Asp Leu Ala Leu Gln Gly Ser 165 170 175

Asn Arg Gln Leu Val Ser Ile Thr Thr Asn Leu Val Asp Leu Val Trp 180 185 190

. Gly Ser Glu Arg Pro Pro Val Pro Asn Gln Pro Ile Tyr Ala Leu Gln 195 200 205

Glu Ala Phe Thr Gly Ser Thr Trp Gln Glu Lys Val Ser Gly Val Arg 210 215 220

Ser Gln Met Gln Lys His Gln Lys Val Pro Thr Ala Val Leu Leu Ser 225 230 235 240

Ala Leu Glu Glu Thr Ala Trp Leu Phe Asn Leu Arg Ala Ser Asp Ile 245 250 255

Pro Tyr Asn Pro Phe Phe Tyr Ser Tyr Thr Leu Leu Thr Asp Ser Ser 260 265 270

Ile Arg Leu Phe Ala Asn Lys Ser Arg Phe Ser Ser Glu Thr Leu Ser 275 280 285

Tyr Leu Asn Ser Ser Cys Thr Gly Pro Met Cys Val Gln Ile Glu Asp 290 295 300

Tyr Ser Gln Val Arg Asp Ser Ile Gln Ala Tyr Ser Leu Gly Asp Val 305 310 315 320

Arg Ile Trp Ile Gly Thr Ser Tyr Thr Met Tyr Gly Ile Tyr Glu Met 325 330 335

Ile Pro Arg Glu Lys Leu Val Thr Asp Thr Tyr Ser Pro Val Met Met

340 345 350

Thr Lys Ala Val Lys Asn Ser Lys Glu Gln Ala Leu Leu Lys Ala Ser 355 360 365

His Val Arg Asp Ala Val Ala Val Ile Arg Tyr Leu Val Trp Leu Glu 370 375 380

Lys Asn Val Pro Lys Gly Thr Val Asp Glu Phe Ser Gly Ala Glu Ile 385 390 395 400

Val Asp Lys Phe Arg Gly Glu Glu Gln Phe Ser Ser Gly Pro Ser Phe
405 410 415

Glu Thr Ile Ser Ala Ser Gly Leu Asn Ala Ala Leu Ala His Tyr Ser 420 425 430

Pro Thr Lys Glu Leu Asn Arg Lys Leu Ser Ser Asp Glu Met Tyr Leu 435 440 445

Leu Asp Ser Gly Gly Gln Tyr Trp Asp Gly Thr Thr Asp Ile Thr Arg 450 455 460

Thr Val His Trp Gly Thr Pro Ser Ala Phe Gln Lys Glu Ala Tyr Thr 465 470 475 480

Arg Val Leu Ile Gly Asn Ile Asp Leu Ser Arg Leu Ile Phe Pro Ala 485 490 495

Ala Thr Ser Gly Arg Met Val Glu Ala Phe Ala Arg Arg Ala Leu Trp 500 505 510

Asp Ala Gly Leu Asn Tyr Gly His Gly Thr Gly His Gly Ile Gly Asn 515 520 525

Phe Leu Cys Val His Glu Trp Pro Val Gly Phe Gln Ser Asn Asn Ile 530 535 540

Ala Met Ala Lys Gly Met Phe Thr Ser Ile Glu Pro Gly Tyr Tyr Lys 545 550 555 560

Asp Gly Glu Phe Gly Ile Arg Leu Glu Asp Val Ala Leu Val Val Glu 565 570 575

| Ala Lys Thr Lys Tyr Pro Gly Glu Leu Pro Asp Leu Val Val Ser Phe 580 585 590   |     |
|---|-----|
| Val Pro Tyr Asp Arg Asn Leu Ile Asp Val Ser Leu Leu Ser Pro Glu<br>595 600 605  |     |
| His Leu Gln Tyr Leu Asn Arg Tyr Tyr Gln Thr Ile Arg Glu Lys Val<br>610 615 620  |     |
| Gly Pro Glu Leu Gln Arg Arg Gln Leu Leu Glu Glu Phe Glu Trp Leu<br>625 630 635 640  |     |
| Gln Gln His Thr Glu Pro Leu Ala Ala Arg Ala Pro Asp Thr Ala Ser<br>645 650 655  |     |
| Trp Ala Ser Val Leu Val Val Ser Thr Leu Ala Ile Leu Gly Trp Ser<br>660 665 670  |     |
| Val   |     |
| <210> 3<br><211> 3428<br><212> DNA<br><213> homo sapiens  |     |
| <220> <221> CDS <222> (265)(2283)   |     |
| <400> 3 caccctatcc tacactacta ggaacttgca cagtccgcct cgggcagccc aaagctcctc   | 60  |
| tgcccaccct ggctcccaaa accctccaaa acaaaagacc agaaaagcac tctccaccca   | 120 |
| gcagccaaac gcctccttct tgacgccagc ccccaccctc tgtctgctcg agcccaggaa   | 180 |
| aggcctgaag gaacaggccg gggaaggagc cctccctctc tcccttgtcc ctccatccac   | 240 |
| ccagcgccgg catctggaga ccct atg gcc cgg gct cac tgg ggc tgc tgc<br>Met Ala Arg Ala His Trp Gly Cys Cys<br>1 5                                  | 291 |
| ccc tgg ctg gtc ctc ctc tgt gct tgt gcc tgg ggc cac aca aag cca<br>Pro Trp Leu Val Leu Cys Ala Cys Ala Trp Gly His Thr Lys Pro<br>10 15 20 25 | 339 |
| ctg gac ctt gga ggg cag gat gtg aga aat tgt tcc acc aac ccc cct   | 387 |

| Leu              | Asp               | Leu               | Gly               | Gly<br>30         | Gln               | Asp               | Val               | Arg               | Asn<br>35         | Cys               | Ser               | Thr               | Asn               | Pro<br>40         | Pro               |      |
|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| tac<br>Tyr       | ctt<br>Leu        | cca<br>Pro        | gtt<br>Val<br>45  | act<br>Thr        | gtg<br>Val        | gtc<br>Val        | aat<br>Asn        | acc<br>Thr<br>50  | aca<br>Thr        | atg<br>Met        | tca<br>Ser        | ctc<br>Leu        | aca<br>Thr<br>55  | gcc<br>Ala        | ctc<br>Leu        | 435  |
| cgc<br>Arg       | cag<br>Gln        | cag<br>Gln<br>60  | atg<br>Met        | cag<br>Gln        | acc<br>Thr        | cag<br>Gln        | aat<br>Asn<br>65  | ctc<br>Leu        | tca<br>Ser        | gcc<br>Ala        | tac<br>Tyr        | atc<br>Ile<br>70  | atc<br>Ile        | cca<br>Pro        | ggc<br>Gly        | 483  |
| aca<br>Thr       | gat<br>Asp<br>75  | gct<br>Ala        | cac<br>His        | atg<br>Met        | aac<br>Asn        | gag<br>Glu<br>80  | tac<br>Tyr        | atc<br>Ile        | ggc<br>Gly        | caa<br>Gln        | cat<br>His<br>85  | gac<br>Asp        | gag<br>Glu        | agg<br>Arg        | cgt<br>Arg        | 531  |
| gcg<br>Ala<br>90 | tgg<br>Trp        | att<br>Ile        | aca<br>Thr        | ggc<br>Gly        | ttt<br>Phe<br>95  | aca<br>Thr        | Gly<br>ggg        | tct<br>Ser        | gca<br>Ala        | gga<br>Gly<br>100 | act<br>Thr        | gca<br>Ala        | gtg<br>Val        | gtg<br>Val        | act<br>Thr<br>105 | 579  |
| atg<br>Met       | aag<br>Lys        | aaa<br>Lys        | gca<br>Ala        | gct<br>Ala<br>110 | gtc<br>Val        | tgg<br>Trp        | acc<br>Thr        | gac<br>Asp        | agt<br>Ser<br>115 | cgc<br>Arg        | tac<br>Tyr        | tgg<br>Trp        | act<br>Thr        | cag<br>Gln<br>120 | gct<br>Ala        | 627  |
| gag<br>Glu       | cgg<br>Arg        | caa<br>Gln        | atg<br>Met<br>125 | gac<br>Asp        | tgt<br>Cys        | aat<br>Asn        | tgg<br>Trp        | gag<br>Glu<br>130 | ctc<br>Leu        | cat<br>His        | aag<br>Lys        | gaa<br>Glu        | gtt<br>Val<br>135 | ggc<br>Gly        | acc<br>Thr        | 675  |
| act<br>Thr       | cct<br>Pro        | att<br>Ile<br>140 | gtc<br>Val        | acc<br>Thr        | tgg<br>Trp        | ctc<br>Leu        | ctc<br>Leu<br>145 | acc<br>Thr        | gag<br>Glu        | att<br>Ile        | ccc<br>Pro        | gct<br>Ala<br>150 | gga<br>Gly        | Gly<br>ggg        | cgt<br>Arg        | 723  |
| gtg<br>Val       | ggt<br>Gly<br>155 | ttt<br>Phe        | gac<br>Asp        | ccc<br>Pro        | ttc<br>Phe        | ctc<br>Leu<br>160 | ttg<br>Leu        | tcc<br>Ser        | att<br>Ile        | gac<br>Asp        | acc<br>Thr<br>165 | tgg<br>Trp        | gag<br>Glu        | agt<br>Ser        | tat<br>Tyr        | 771  |
|                  |                   |                   |                   |                   | ggc<br>Gly<br>175 |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   | 819  |
| aat<br>Asn       | ctt<br>Leu        | Val               | gac<br>Asp        | Leu               | gta<br>Val        | tgg<br>Trp        | gga<br>Gly        | Ser               | gag<br>Glu<br>195 | Arg               | cca<br>Pro        | ccg<br>Pro        | gtt<br>Val        | cca<br>Pro<br>200 | aat<br>Asn        | 867  |
| caa<br>Gln       | ccc<br>Pro        | att<br>Ile        | tat<br>Tyr<br>205 | gcc<br>Ala        | ctg<br>Leu        | cag<br>Gln        | gag<br>Glu        | gca<br>Ala<br>210 | ttc<br>Phe        | aca<br>Thr        | GJÀ<br>aaa        | agc<br>Ser        | act<br>Thr<br>215 | tgg<br>Trp        | cag<br>Gln        | 915  |
|                  |                   |                   |                   |                   | gtc<br>Val        |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   | 963  |
| ccg<br>Pro       | act<br>Thr<br>235 | gcc<br>Ala        | gtc<br>Val        | ctt<br>Leu        | ctg<br>Leu        | tcg<br>Ser<br>240 | gcg<br>Ala        | ctt<br>Leu        | gag<br>Glu        | gag<br>Glu        | acg<br>Thr<br>245 | gcc<br>Ala        | tgg<br>Trp        | ctc<br>Leu        | ttc<br>Phe        | 1011 |
|                  |                   |                   |                   |                   | gac<br>Asp        |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   | 1059 |

| 250                    |                   |                   |                        |                   | 255               |                   |                   |                   |                   | 260               |                   |                   |                   |                   | 265               |      |              |
|------------------------|-------------------|-------------------|------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|--------------|
| acg<br>Thr             | ctg<br>Leu        | ctc<br>Leu        | aca<br>Thr             | gac<br>Asp<br>270 | tct<br>Ser        | tct<br>Ser        | att<br>Ile        | agg<br>Arg        | ttg<br>Leu<br>275 | ttt<br>Phe        | gca<br>Ala        | aac<br>Asn        | aag<br>Lys        | agt<br>Ser<br>280 | cgc<br>Arg        | 110  | 7            |
| ttt<br>Phe             | agc<br>Ser        | tcc<br>Ser        | gaa<br>Glu<br>285      | acc<br>Thr        | ttg<br>Leu        | agc<br>Ser        | tat<br>Tyr        | ctg<br>Leu<br>290 | aac<br>Asn        | tcc<br>Ser        | agt<br>Ser        | tgc<br>Cys        | aca<br>Thr<br>295 | Gly               | ccc<br>Pro        | 115  | 5            |
| atg<br>Met             | tgt<br>Cys        | gtg<br>Val<br>300 | caa<br>Gln             | atc<br>Ile        | gag<br>Glu        | gat<br>Asp        | tac<br>Tyr<br>305 | agc<br>Ser        | caa<br>Gln        | gtt<br>Val        | cgt<br>Arg        | gac<br>Asp<br>310 | agc<br>Ser        | atc<br>Ile        | cag<br>Gln        | 1203 | 3            |
| gcc<br>Ala             | tac<br>Tyr<br>315 | tca<br>Ser        | ttg<br>Leu             | gga<br>Gly        | gat<br>Asp        | gtg<br>Val<br>320 | agg<br>Arg        | atc<br>Ile        | tgg<br>Trp        | att<br>Ile        | ggg<br>Gly<br>325 | acc<br>Thr        | agc<br>Ser        | tat<br>Tyr        | acc<br>Thr        | 1253 | 1            |
| atg<br>Met<br>330      | tat<br>Tyr        | Gly               | atc<br>Ile             | tat<br>Tyr        | gaa<br>Glu<br>335 | atg<br>Met        | ata<br>Ile        | cca<br>Pro        | agg<br>Arg        | gag<br>Glu<br>340 | aaa<br>Lys        | ctc<br>Leu        | gtg<br>Val        | aca<br>Thr        | gac<br>Asp<br>345 | 1299 | 9            |
| acc<br>Thr             | tac<br>Tyr        | tcc<br>Ser        | cca<br>Pro             | gtg<br>Val<br>350 | atg<br>Met        | atg<br>Met        | acc<br>Thr        | aag<br>Lys        | gca<br>Ala<br>355 | gtg<br>Val        | aag<br>Lys        | aac<br>Asn        | agc<br>Ser        | aag<br>Lys<br>360 | gag<br>Glu        | 1347 | 7            |
| cag<br>Gln             | gcc<br>Ala        | ctc<br>Leu        | ctc<br>Leu<br>365      | aag<br>Lys        | gcc<br>Ala        | agc<br>Ser        | cac<br>His        | gtg<br>Val<br>370 | cgg<br>Arg        | gac<br>Asp        | gct<br>Ala        | gtg<br>Val        | gct<br>Ala<br>375 | gtg<br>Val        | atc<br>Ile        | 1395 | 5            |
| cgg<br>Arg             | tac<br>Tyr        | ttg<br>Leu<br>380 | gtc<br>Val             | tgg<br>Trp        | ctg<br>Leu        | gag<br>Glu        | aag<br>Lys<br>385 | aac<br>Asn        | gtg<br>Val        | ccc<br>Pro        | aaa<br>Lys        | ggc<br>Gly<br>390 | aca<br>Thr        | gtg<br>Val        | gat<br>Asp        | 1443 | 3            |
| gag<br>Glu             | ttt<br>Phe<br>395 | tcg<br>Ser        | Gl <sup>A</sup><br>aaa | gca<br>Ala        | gag<br>Glu        | atc<br>Ile<br>400 | gtg<br>Val        | gac<br>Asp        | aag<br>Lys        | ttc<br>Phe        | cga<br>Arg<br>405 | gga<br>Gly        | gaa<br>Glu        | gaa<br>Glu        | cag<br>Gln        | 1491 | L            |
| ttc<br>Phe<br>410      | tcc<br>Ser        | tcc<br>Ser        | gga<br>Gly             | ccc<br>Pro        | agt<br>Ser<br>415 | ttt<br>Phe        | gaa<br>Glu        | acc<br>Thr        | atc<br>Ile        | tct<br>Ser<br>420 | gct<br>Ala        | agt<br>Ser        | ggt<br>Gly        | ttg<br>Leu        | aat<br>Asn<br>425 | 1539 | <del>)</del> |
| gct<br>Ala             | gcc<br>Ala        | ctg<br>Leu        | gcc<br>Ala             | cac<br>His<br>430 | tac<br>Tyr        | agc<br>Ser        | ccg<br>Pro        | acc<br>Thr        | aag<br>Lys<br>435 | gag<br>Glu        | ctg<br>Lẹu        | aac<br>Asn        | cgc<br>Arg        | aag<br>Lys<br>440 | ctg<br>Leu        | 1587 | 1            |
| tcc<br>Ser             | tca<br>Ser        | gat<br>Asp        | gag<br>Glu<br>445      | atg<br>Met        | tac<br>Tyr        | ctg<br>Leu        | ctg<br>Leu        | gac<br>Asp<br>450 | tct<br>Ser        | Gly<br>ggg        | Gly<br>ggg        | cag<br>Gln        | tac<br>Tyr<br>455 | tgg<br>Trp        | gac<br>Asp        | 1635 | ;            |
| Gl <sup>A</sup><br>aaa | acc<br>Thr        | aca<br>Thr<br>460 | gac<br>Asp             | atc<br>Ile        | acc<br>Thr        | aga<br>Arg        | aca<br>Thr<br>465 | gtc<br>Val        | cac<br>His        | tgg<br>Trp        | ggc<br>Gly        | acc<br>Thr<br>470 | ccc<br>Pro        | tct<br>Ser        | gcc<br>Ala        | 1683 | ;            |
| ttt<br>Phe             | cag<br>Gln<br>475 | aag<br>Lys        | gag<br>Glu             | gca<br>Ala        | tat<br>Tyr        | acc<br>Thr<br>480 | cgt<br>Arg        | gtg<br>Val        | ctg<br>Leu        | ata<br>Ile        | gga<br>Gly<br>485 | aat<br>Asn        | att<br>Ile        | gac<br>Asp        | ctg<br>Leu        | 1731 |              |

| tcc agg ctc atc ttt ccc gct gct aca tca ggg cga atg gtg gag gcc<br>Ser Arg Leu Ile Phe Pro Ala Ala Thr Ser Gly Arg Met Val Glu Ala<br>490 495 500 505 | 1779 |
|---|------|
| ttt gcc cgc aga gcc ttg tgg gat gct ggt ctc aat tat ggt cat ggg<br>Phe Ala Arg Arg Ala Leu Trp Asp Ala Gly Leu Asn Tyr Gly His Gly<br>510 515 520     | 1827 |
| aca ggc cac ggc att ggc aac ttc ctg tgt gtg cat gag tgg cca gtg Thr Gly His Gly Ile Gly Asn Phe Leu Cys Val His Glu Trp Pro Val 525 530 535           | 1875 |
| gga ttc cag tcc aac aac atc gct atg gcc aag ggc atg ttc act tcc<br>Gly Phe Gln Ser Asn Asn Ile Ala Met Ala Lys Gly Met Phe Thr Ser<br>540 545 550     | 1923 |
| att gaa cct ggt tac tat aag gat gga gaa ttt ggg atc cgt ctc gaa<br>Ile Glu Pro Gly Tyr Tyr Lys Asp Gly Glu Phe Gly Ile Arg Leu Glu<br>555 560 565     | 1971 |
| gat gtg gct ctc gtg gta gaa gca aag acc aag tac cca ggg gag cta<br>Asp Val Ala Leu Val Val Glu Ala Lys Thr Lys Tyr Pro Gly Glu Leu<br>570 585         | 2019 |
| cct gac ctt gtg gta tca ttt gtg ccc tat gac cgg aac ctc atc gat<br>Pro Asp Leu Val Val Ser Phe Val Pro Tyr Asp Arg Asn Leu Ile Asp<br>590 595 600     | 2067 |
| gtc agc ctg ctg tct ccg gag cat ctc cag tac ctg aat cgc tac tac<br>Val Ser Leu Leu Ser Pro Glu His Leu Gln Tyr Leu Asn Arg Tyr Tyr<br>605 610 615     | 2115 |
| cag acc atc cgg gag aag gtg ggt cca gag ctg cag agg cgc cag cta<br>Gln Thr Ile Arg Glu Lys Val Gly Pro Glu Leu Gln Arg Arg Gln Leu<br>620 625 630     | 2163 |
| cta gag gag ttc gag tgg ctt caa cag cac aca gag ccc ctg gcc gcc<br>Leu Glu Glu Phe Glu Trp Leu Gln Gln His Thr Glu Pro Leu Ala Ala<br>635 640 645     | 2211 |
| agg gcc cca gac acc gcc tcc tgg gcc tct gtg tta gtg gtc tcc acc<br>Arg Ala Pro Asp Thr Ala Ser Trp Ala Ser Val Leu Val Val Ser Thr<br>650 665         | 2259 |
| ctt gcc atc ctt ggc tgg agt gtc tagaggctcc agactctcct gttaaccctc<br>Leu Ala Ile Leu Gly Trp Ser Val<br>670  | 2313 |
| catctagatg gggggctccc ttgcttagct cccctcaccc tgcactgaac ataccccaag   | 2373 |
| agcccctgct ggcccattgc ctagaaacct ttgcattcat cctccttctc caagacctat   | 2433 |
| ggagaaggtc ccaggcccca ggaaacacag ggcttcttgg ccccagatgg cacctccctg   | 2493 |
| caccccgggg ttgtatacca caccctgggc ccctaatccc aggccccgaa ataggaaagc   | 2553 |

| cagctagtct | cttctcttct | gtgatctcag | taggcctaac | ctataaccta | acacagactg | 2613 |
|------------|------------|------------|------------|------------|------------|------|
| ctacagctgc | tacaataaag | ccaaacaaag | ccccaagaaa | acaatgcccc | taccacccaa | 2673 |
| gggtgccatg | gtcccgggaa | aacccaacct | gtcaccgcgt | gttgggcgta | accagaactg | 2733 |
| ttccccccca | ccagggctta | aaaatcgccc | ccacttttta | accatcgtcc | attaaccacc | 2793 |
| tggtgggcat | agccagagct | gttcgaaccc | agccagggat | gaaaaatcaa | ccccgacat  | 2853 |
| ggaacccatg | attcctaaac | ccggggtagg | ttccatgcca | agtaacagca | gagggagtta | 2913 |
| agccatagga | atttggctgt | ggagtaagag | ggaatgcggt | gaggcagtgt | ggaatatgac | 2973 |
| cctaccagag | gttggagaac | aaacttgggc | agccggaacc | cgtcactatt | ttagattcct | 3033 |
| ggcattcgag | gagccctttg | aactttccaa | agtgcagcca | cagctacaat | gctgttaaat | 3093 |
| cctcccacat | ttcttggatg | ccccttcacc | ttgtgtggac | agtgtctggt | ttccccattt | 3153 |
| tacagacagg | aaaactgagc | ttcagacagg | gggtgggctt | tgcctaagga | cacacaaatt | 3213 |
| tggttgggag | ttgatggggc | cagatgagcc | agcattccag | ctgtttcacc | cttcagcaac | 3273 |
| atgcagagtc | cctgagccca | cctcccagcc | ctctcctcat | tctctgaacc | cactgtggtg | 3333 |
| agaagaattt | gctccggcca | aattggccgt | tagccacctg | ggtccacatc | ctgctaagac | 3393 |
| gtttaaaaca | gcctaacaaa | gacacttgcc | tgtgg      |            |            | 3428 |

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<212> PRT

<213> homo sapiens

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Met Ala Arg Ala His Trp Gly Cys Cys Pro Trp Leu Val Leu Cys 1 5 10 15 15

Ala Cys Ala Trp Gly His Thr Lys Pro Leu Asp Leu Gly Gly Gln Asp 20 25 30

Val Arg Asn Cys Ser Thr Asn Pro Pro Tyr Leu Pro Val Thr Val Val 35 40 45

Asn Thr Thr Met Ser Leu Thr Ala Leu Arg Gln Gln Met Gln Thr Gln 50 55 60

Asn Leu Ser Ala Tyr Ile Ile Pro Gly Thr Asp Ala His Met Asn Glu 65 70 75 80

Tyr Ile Gly Gln His Asp Glu Arg Arg Ala Trp Ile Thr Gly Phe Thr 85 90 95

Gly Ser Ala Gly Thr Ala Val Val Thr Met Lys Lys Ala Ala Val Trp 100 105 110

Thr Asp Ser Arg Tyr Trp Thr Gln Ala Glu Arg Gln Met Asp Cys Asn 115 120 125

Trp Glu Leu His Lys Glu Val Gly Thr Thr Pro Ile Val Thr Trp Leu 130 135 140

Leu Thr Glu Ile Pro Ala Gly Gly Arg Val Gly Phe Asp Pro Phe Leu 145 150 155 160

Leu Ser Ile Asp Thr Trp Glu Ser Tyr Asp Leu Ala Leu Gln Gly Ser 165 170 175

Asn Arg Gln Leu Val Ser Ile Thr Thr Asn Leu Val Asp Leu Val Trp 180 185 190

Gly Ser Glu Arg Pro Pro Val Pro Asn Gln Pro Ile Tyr Ala Leu Gln 195 200 205

Glu Ala Phe Thr Gly Ser Thr Trp Gln Glu Lys Val Ser Gly Val Arg 210 215 220

Ser Gln Met Gln Lys His Gln Lys Val Pro Thr Ala Val Leu Leu Ser 225 230 235 240

Ala Leu Glu Glu Thr Ala Trp Leu Phe Asn Leu Arg Ala Ser Asp Ile 245 250 255

Pro Tyr Asn Pro Phe Phe Tyr Ser Tyr Thr Leu Leu Thr Asp Ser Ser 260 265 270

Ile Arg Leu Phe Ala Asn Lys Ser Arg Phe Ser Ser Glu Thr Leu Ser 275 280 285

Tyr Leu Asn Ser Ser Cys Thr Gly Pro Met Cys Val Gln Ile Glu Asp 290 295 300

Tyr Ser Gln Val Arg Asp Ser Ile Gln Ala Tyr Ser Leu Gly Asp Val 305 310 315 320

Arg Ile Trp Ile Gly Thr Ser Tyr Thr Met Tyr Gly Ile Tyr Glu Met 325 330 335

Ile Pro Arg Glu Lys Leu Val Thr Asp Thr Tyr Ser Pro Val Met Met 340 345 350

Thr Lys Ala Val Lys Asn Ser Lys Glu Gln Ala Leu Leu Lys Ala Ser 355 360 365

His Val Arg Asp Ala Val Ala Val Ile Arg Tyr Leu Val Trp Leu Glu 370 380

Lys Asn Val Pro Lys Gly Thr Val Asp Glu Phe Ser Gly Ala Glu Ile 385 390 395 400

Val Asp Lys Phe Arg Gly Glu Glu Gln Phe Ser Ser Gly Pro Ser Phe 405 410 415

Glu Thr Ile Ser Ala Ser Gly Leu Asn Ala Ala Leu Ala His Tyr Ser 420 425 430

Pro Thr Lys Glu Leu Asn Arg Lys Leu Ser Ser Asp Glu Met Tyr Leu 435 440 445

Leu Asp Ser Gly Gly Gln Tyr Trp Asp Gly Thr Thr Asp Ile Thr Arg 450 455 460

Thr Val His Trp Gly Thr Pro Ser Ala Phe Gln Lys Glu Ala Tyr Thr 465 470 475 480

Arg Val Leu Ile Gly Asn Ile Asp Leu Ser Arg Leu Ile Phe Pro Ala 485 490 495

Ala Thr Ser Gly Arg Met Val Glu Ala Phe Ala Arg Arg Ala Leu Trp 500 505 510

Asp Ala Gly Leu Asn Tyr Gly His Gly Thr Gly His Gly Ile Gly Asn 515 520 525

Phe Leu Cys Val His Glu Trp Pro Val Gly Phe Gln Ser Asn Asn Ile

| Ala<br>545                   | Met          | Ala                      | Lys        | Gly            | Met<br>550 | Phe        | Thr        | Ser        | Ile        | Glu<br>555 | Pro        | Gly        | Tyr        | Tyr        | Lys<br>560 |   |    |
|------------------------------|--------------|--------------------------|------------|----------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|---|----|
| Asp                          | Gly          | Glu                      | Phe        | Gly<br>565     | Ile        | Arg        | Leu        | Glu        | Asp<br>570 | Val        | Ala        | Leu        | Val        | Val<br>575 | Glu        |   |    |
| Ala                          | Lys          | Thr                      | Lys<br>580 | Tyr            | Pro        | Gly        | Glu        | Leu<br>585 | Pro        | Asp        | Leu        | Val        | Val<br>590 | Ser        | Phe        |   |    |
| Val                          | Pro          | Туr<br>595               | Asp        | Arg            | Asn        | Leu        | Ile<br>600 | Asp        | Val        | Ser        | Leu        | Leu<br>605 | Ser        | Pro        | Glu        |   |    |
| His                          | Leu<br>610   | Gln                      | Tyr        | Leu            | Asn        | Arg<br>615 | Tyr        | Tyr        | Gln        | Thr        | Ile<br>620 | Arg        | Glu        | Lys        | Val        |   |    |
| Gly<br>625                   | Pro          | Glu                      | Leu        | Gln            | Arg<br>630 | Arg        | Gln        | Leu        | Leu        | Glu<br>635 | Glu        | Phe        | Glu        | Trp        | Leu<br>640 |   |    |
| Gln                          | Gln          | His                      | Thr        | Glu<br>645     | Pro        | Leu        | Ala        | Ala        | Arg<br>650 | Ala        | Pro        | Asp        | Thr        | Ala<br>655 | Ser        |   |    |
| Trp                          | Ala          | Ser                      | Val<br>660 | Leu            | Val        | Val        | Ser        | Thr<br>665 | Leu        | Ala        | Ile        | Leu        | Gly<br>670 | Trp        | Ser        |   |    |
| Val                          |              |                          |            |                |            |            |            |            |            |            |            |            |            |            |            |   |    |
| <210<br><211<br><212<br><213 | L> :<br>2> 1 | 5<br>1082<br>DNA<br>homo | sap:       | iens           |            |            |            |            |            |            |            |            |            |            |            |   |    |
| <220<br><221<br><222         | L> (         | CDS                      | . (10      | 65)            |            |            |            |            |            |            |            |            |            |            |            |   |    |
| <400                         | gc a         |                          |            | tca t<br>Ser S | Ser 1      |            |            |            |            | Glu 1      |            |            |            |            |            | 4 | 48 |
| _                            | _            | _                        |            | ttc<br>Phe     |            |            |            | _          | _          | _          | _          | _          |            | _          |            | 9 | 96 |

|     |     |     |     |     | _   | cac<br>His        | _   |     | -   | _   |     |     |     |     |     | 144 |
|-----|-----|-----|-----|-----|-----|-------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     |     |     |     |     |     | cta<br>Leu        |     |     |     |     |     |     |     |     |     | 192 |
|     | -   |     |     |     |     | ctg<br>Leu        |     |     | _   | _   |     |     | _   | _   |     | 240 |
|     |     |     |     |     |     | gtg<br>Val<br>85  |     |     |     |     |     |     |     |     | _   | 288 |
|     |     |     |     |     |     | ttt<br>Phe        |     |     |     |     |     |     |     |     |     | 336 |
|     |     |     |     |     |     | atc<br>Ile        |     |     |     | _   |     |     | _   |     |     | 384 |
|     |     |     |     |     |     | cag<br>Gln        |     |     |     |     |     |     |     |     |     | 432 |
|     |     |     |     |     |     | cag<br>Gln        |     |     |     | -   |     |     | _   |     |     | 480 |
|     |     |     |     |     |     | ggg<br>Gly<br>165 |     |     |     | _   |     |     |     |     | _   | 528 |
|     |     |     |     |     |     | gtc<br>Val        |     |     |     |     |     |     |     |     |     | 576 |
|     |     |     |     |     |     | gcc<br>Ala        |     |     |     |     |     |     |     |     |     | 624 |
|     |     |     |     |     |     | cta<br>Leu        |     |     |     |     |     |     |     |     |     | 672 |
|     |     |     |     |     |     | ctg<br>Leu        |     |     |     |     |     |     |     |     |     | 720 |
|     |     |     |     |     |     | gat<br>Asp<br>245 |     |     |     |     | -   | _   |     |     | _   | 768 |
| ctc | gtg | gtt | gcc | ttc | ctg | gtc               | tgc | tgg | gcc | cct | tac | cac | ttc | ttt | gcc | 816 |

| Leu<br>255 | Val                  | Val                     | Ala       | Phe      | Leu<br>260 | Val       | Cys       | Trp       | Ala       | Pro<br>265 | Tyr       | His       | Phe       | Phe       | Ala<br>270 |      |
|------------|----------------------|-------------------------|-----------|----------|------------|-----------|-----------|-----------|-----------|------------|-----------|-----------|-----------|-----------|------------|------|
|            | ctg<br>Leu           |                         |           |          |            | _         |           |           | _         | _          | _         |           |           |           |            | 864  |
|            | gac<br>Asp           |                         |           | _        | _          |           |           |           | _         | _          |           |           |           | _         |            | 912  |
|            | aac<br>Asn           | _                       |           | _        |            |           | -         |           |           | _          |           |           | ~ ~       | ~~        |            | 960  |
|            | agg<br>Arg<br>320    |                         | _         | _        |            | -         |           |           |           |            | -         |           |           |           | -          | 1008 |
|            | gct<br>Ala           |                         |           |          |            |           |           |           |           | -          |           |           |           |           |            | 1056 |
|            | cgg<br>Arg           |                         | taaa      | aacag    | gca t      | tgaa      | acc       |           |           |            |           |           |           |           |            | 1082 |
| <21        | 1> 1<br>2> 1<br>3> 1 | 5<br>353<br>PRT<br>nomo | sapi      | iens     |            |           |           |           |           |            |           |           |           |           |            |      |
| <40        | 0> (                 | 5                       |           |          |            |           |           |           |           |            |           |           |           |           |            |      |
| Met<br>1   | Ala                  | Ser                     | Ser       | Trp<br>5 | Pro        | Pro       | Leu       | Glu       | Leu<br>10 | Gln        | Ser       | Ser       | Asn       | Gln<br>15 | Ser        |      |
| Gln        | Leu                  | Phe                     | Pro<br>20 | Gln      | Asn        | Ala       | Thr       | Ala<br>25 | Cys       | Asp        | Asn       | Ala       | Pro<br>30 | Glu       | Ala        |      |
| Trp        | Asp                  | Leu<br>35               | Leu       | His      | Arg        | Val       | Leu<br>40 | Pro       | Thr       | Phe        | Ile       | Ile<br>45 | Ser       | Ile       | Cys        |      |
| Phe        | Phe<br>50            | Gly                     | Leu       | Leu      | Gly        | Asn<br>55 | Leu       | Phe       | Val       | Leu        | Leu<br>60 | Val       | Phe       | Leu       | Leu        |      |
| Pro<br>65  | Arg                  | Arg                     | Gln       | Leu      | Asn<br>70  | Val       | Ala       | Glu       | Ile       | Tyr<br>75  | Leu       | Ala       | Asn       | Leu       | Ala<br>80  |      |
| Ala        | Ser                  | Asp                     | Leu       | Val      | Phe        | Val       | Leu       | Glv       | Leu       | Pro        | Phe       | Trp       | Ala       | Glu       | Δen        |      |

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Ile Trp Asn Gln Phe Asn Trp Pro Phe Gly Ala Leu Leu Cys Arg Val 100 105 Ile Asn Gly Val Ile Lys Ala Asn Leu Phe Ile Ser Ile Phe Leu Val 120 Val Ala Ile Ser Gln Asp Arg Tyr Arg Val Leu Val His Pro Met Ala Ser Gly Arg Gln Gln Arg Arg Gln Ala Arg Val Thr Cys Val Leu 155 Ile Trp Val Val Gly Gly Leu Leu Ser Ile Pro Thr Phe Leu Leu Arg 170 Ser Ile Gln Ala Val Pro Asp Leu Asn Ile Thr Ala Cys Ile Leu Leu 180 185 Leu Pro His Glu Ala Trp His Phe Ala Arg Ile Val Glu Leu Asn Ile 195 200 205 Leu Gly Phe Leu Leu Pro Leu Ala Ala Ile Val Phe Phe Asn Tyr His 210 215 220 Ile Leu Ala Ser Leu Arg Thr Arg Glu Glu Val Ser Arg Thr Arg Val 225 230 235 240 Arg Gly Pro Lys Asp Ser Lys Thr Thr Ala Leu Ile Leu Thr Leu Val 245 250 255 Val Ala Phe Leu Val Cys Trp Ala Pro Tyr His Phe Ala Phe Leu 260 265 Glu Phe Leu Phe Gln Val Gln Ala Val Arg Gly Cys Phe Trp Glu Asp 275 Phe Ile Asp Leu Gly Leu Gln Leu Ala Asn Phe Phe Ala Phe Thr Asn 290 295

Ser Ser Leu Asn Pro Val Ile Tyr Val Phe Val Gly Arg Leu Phe Arg

310

| Thr | Lys | Val | Trp | Glu | Leu | Tyr | Lys | Gln | Cys | Thr | Pro | Lys | Ser | Leu | Ala |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |

Asn

| <210> 7 <211> 1082 <212> DNA <213> homo sapiens   |     |
|---|-----|
| <220> <221> CDS <222> (7)(1065)   |     |
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| cag agc cag ctc ttc cct caa aat gct acg gcc tgt gac aat gct cca<br>Gln Ser Gln Leu Phe Pro Gln Asn Ala Thr Ala Cys Asp Asn Ala Pro<br>15 20 25 30         | 96  |
| gaa gcc tgg gac ctg ctg cac aga gtg ctg ccg aca ttt atc atc tcc<br>Glu Ala Trp Asp Leu Leu His Arg Val Leu Pro Thr Phe Ile Ile Ser<br>35 40 45            | 144 |
| atc tgt ttc ttc ggc ctc cta ggg aac ctt ttt gtc ctg ttg gtc ttc<br>Ile Cys Phe Phe Gly Leu Leu Gly Asn Leu Phe Val Leu Val Phe<br>50 55 60                | 192 |
| ctc ctg ccc cgg cgg caa ctg aac gtg gca gaa atc tac ctg gcc aac<br>Leu Leu Pro Arg Arg Gln Leu Asn Val Ala Glu Ile Tyr Leu Ala Asn<br>65 70 75            | 240 |
| ctg gca gcc tct gat ctg gtg ttt gtc ttg ggc ttg ccc ttc tgg gca<br>Leu Ala Ala Ser Asp Leu Val Phe Val Leu Gly Leu Pro Phe Trp Ala<br>80 85 90            | 288 |
| gag aat atc tgg aac cag ttt aac tgg cct ttc gga gcc ctc ctc tgc Glu Asn Ile Trp Asn Gln Phe Asn Trp Pro Phe Gly Ala Leu Leu Cys 100 105 110               | 336 |
| cgt gtc atc aac ggg gtc atc aag gcc aat ttg ttc atc agc atc ttc<br>Arg Val Ile Asn Gly Val Ile Lys Ala Asn Leu Phe Ile Ser Ile Phe<br>115 120 125         | 384 |
| ctg gtg gtg gcc atc agc cag gac cgc tac cgc gtg ctg gtg cac cct<br>Leu Val Val Ala Ile Ser Gln Asp Arg Tyr Arg Val Leu Val His Pro                        | 432 |

|                                   | 130                                 | 135                               |                                   | 140                               |                        |
|-----------------------------------|-------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|------------------------|
| atg gcc ago<br>Met Ala Ser<br>145 | Gly Arg Gln                         | cag cgg cgg<br>Gln Arg Arg<br>150 | agg cag gcc<br>Arg Gln Ala        | cgg gtc acc<br>Arg Val Thr<br>155 | tgc 480<br>Cys         |
| gtg ctc atc<br>Val Leu Ile<br>160 | tgg gtt gtg<br>Trp Val Val          | ggg ggc ctc<br>Gly Gly Leu<br>165 | ttg agc atc<br>Leu Ser Ile<br>170 | ccc aca ttc<br>Pro Thr Phe        | ctg 528<br>Leu         |
| ctg cga tcc<br>Leu Arg Ser<br>175 | atc caa gcc<br>Ile Gln Ala<br>180   | gtc cca gat<br>Val Pro Asp        | ctg aac atc<br>Leu Asn Ile<br>185 | acc gcc tgc<br>Thr Ala Cys        | atc 576<br>Ile<br>190  |
| ctg ctc ctc<br>Leu Leu Leu        | ccc cat gag<br>Pro His Glu<br>195   | gcc tgg cac<br>Ala Trp His        | ttt gca agg<br>Phe Ala Arg<br>200 | att gtg gag<br>Ile Val Glu<br>205 | tta 624<br>Leu         |
|                                   |                                     |                                   | gct gcg atc<br>Ala Ala Ile        |                                   |                        |
| tac cac atc<br>Tyr His Ile<br>225 | ctg gcc tcc<br>Leu Ala Ser          | ctg cga acg<br>Leu Arg Thr<br>230 | cgg gag gag<br>Arg Glu Glu        | gtc agc agg<br>Val Ser Arg<br>235 | aca 720<br>Thr         |
|                                   |                                     |                                   | acc aca gcg<br>Thr Thr Ala<br>250 |                                   |                        |
| ctc gtg gtt<br>Leu Val Val<br>255 | gcc ttc ctg<br>Ala Phe Leu<br>260   | gtc tgc tgg<br>Val Cys Trp        | gcc cct tac<br>Ala Pro Tyr<br>265 | cac ttc ttt<br>His Phe Phe        | gcc 816<br>Ala<br>270  |
| ttc ctg gaa<br>Phe Leu Glu        | ttc tta ttc<br>Phe Leu Phe<br>275   | cag gtg caa<br>Gln Val Gln        | gca gtc cga<br>Ala Val Arg<br>280 | ggc tgc ttt<br>Gly Cys Phe<br>285 | tgg 864<br>Trp         |
| gag gac ttc<br>Glu Asp Phe        | att gac ctg<br>Ile Asp Leu<br>290   | ggc ctg caa<br>Gly Leu Gln<br>295 | ttg gcc aac<br>Leu Ala Asn        | ttc ttt gcc<br>Phe Phe Ala<br>300 | ttc 912<br>Phe         |
| act aac agc<br>Thr Asn Ser<br>305 | tcc ctg aat<br>Ser Leu Asn          | cca gta att<br>Pro Val Ile<br>310 | tat gtc ttt<br>Tyr Val Phe        | gtg ggc cag<br>Val Gly Gln<br>315 | ctc 960<br>Leu         |
| ttc agg acc<br>Phe Arg Thr<br>320 | aag gtc tgg<br>Lys Val Trp          | gaa ctt tat<br>Glu Leu Tyr<br>325 | aaa caa tgc<br>Lys Gln Cys<br>330 | acc cct aaa<br>Thr Pro Lys        | agt 1008<br>Ser        |
| ctt gct cca<br>Leu Ala Pro<br>335 | ata tct tca<br>Ile Ser Ser<br>. 340 | tcc cat agg<br>Ser His Arg        | aaa gaa atc<br>Lys Glu Ile<br>345 | ttc caa ctt<br>Phe Gln Leu        | ttc 1056<br>Phe<br>350 |
| tgg cgg aat<br>Trp Arg Asn        | taaaacagca t                        | tgaacc                            |                                   |                                   | 1082                   |

| <21<br><21<br><21<br><21 | 1><br>2>   | 8<br>353<br>PRT<br>homo | sap:       | iens      |            |            |            |            |           |            |            |            |            |           |            |
|--------------------------|------------|-------------------------|------------|-----------|------------|------------|------------|------------|-----------|------------|------------|------------|------------|-----------|------------|
| <40                      | 0>         | 8                       |            |           |            |            |            |            |           |            |            |            |            |           |            |
| Met<br>1                 | Ala        | Ser                     | Ser        | Trp<br>5  | Pro        | Pro        | Leu        | Glu        | Leu<br>10 | Gln        | Ser        | Ser        | Asn        | Gln<br>15 | Ser        |
| Gln                      | Leu        | Phe                     | Pro<br>20  | Gln       | Asn        | Ala        | Thr        | Ala<br>25  | Cys       | Asp        | Asn        | Ala        | Pro<br>30  | Glu       | Ala        |
| Trp                      | Asp        | Leu<br>35               | Leu        | His       | Arg        | Val        | Leu<br>40  | Pro        | Thr       | Phe        | Ile        | Ile<br>45  | Ser        | Ile       | Cys        |
| Phe                      | Phe<br>50  | Gly                     | Leu        | Leu       | Gly        | Asn<br>55  | Leu        | Phe        | Val       | Leu        | Leu<br>60  | Val        | Phe        | Leu       | Leu        |
| Pro<br>65                | Arg        | Arg                     | Gln        | Leu       | Asn<br>70  | Val        | Ala        | Glu        | Ile       | Tyr<br>75  | Leu        | Ala        | Asn        | Leu       | Ala<br>80  |
| Ala                      | Ser        | Asp                     | Leu        | Val<br>85 | Phe        | Val        | Leu        | Gly        | Leu<br>90 | Pro        | Phe        | Trp        | Ala        | Glu<br>95 | Asn        |
| Ile                      | Trp        | Asn                     | Gln<br>100 | Phe       | Asn        | Trp        | Pro        | Phe<br>105 | Gly       | Ala        | Leu        | Leu        | Cys<br>110 | Arg       | Val        |
| Ile                      | Asn        | Gly<br>115              | Val        | Ile       | Lys        | Ala        | Asn<br>120 | Leu        | Phe       | Ile        | Ser        | Ile<br>125 | Phe        | Leu       | Val        |
| Val                      | Ala<br>130 | Ile                     | Ser        | Gln       | Asp        | Arg<br>135 | Tyr        | Arg        | Val       | Leu        | Val<br>140 | His        | Pro        | Met       | Ala        |
| Ser<br>145               | Gly        | Arg                     | Gln        | Gln       | Arg<br>150 | Arg        | Arg        | Gln        | Ala       | Arg<br>155 | Val        | Thr        | Cys        | Val       | Leu<br>160 |
|                          |            |                         |            |           |            |            |            |            |           |            |            |            |            |           |            |

Ile Trp Val Val Gly Gly Leu Leu Ser Ile Pro Thr Phe Leu Leu Arg 165 170 175

Ser Ile Gln Ala Val Pro Asp Leu Asn Ile Thr Ala Cys Ile Leu Leu

Leu Pro His Glu Ala Trp His Phe Ala Arg Ile Val Glu Leu Asn Ile 200 Leu Gly Phe Leu Leu Pro Leu Ala Ala Ile Val Phe Phe Asn Tyr His 215 Ile Leu Ala Ser Leu Arg Thr Arg Glu Glu Val Ser Arg Thr Arg Val 230 235 240 Arg Gly Pro Lys Asp Ser Lys Thr Thr Ala Leu Ile Leu Thr Leu Val 250 Val Ala Phe Leu Val Cys Trp Ala Pro Tyr His Phe Phe Ala Phe Leu 265 Glu Phe Leu Phe Gln Val Gln Ala Val Arg Gly Cys Phe Trp Glu Asp 275 280 Phe Ile Asp Leu Gly Leu Gln Leu Ala Asn Phe Phe Ala Phe Thr Asn 290 295 300 Ser Ser Leu Asn Pro Val Ile Tyr Val Phe Val Gly Gln Leu Phe Arg 310 315 Thr Lys Val Trp Glu Leu Tyr Lys Gln Cys Thr Pro Lys Ser Leu Ala

Pro Ile Ser Ser His Arg Lys Glu Ile Phe Gln Leu Phe Trp Arg

330

Asn

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22

| cag<br>Gln<br>15  | agc<br>Ser        | cag<br>Gln        | ctc<br>Leu        | ttc<br>Phe        | cct<br>Pro<br>20  | caa<br>Gln        | aat<br>Asn        | gct<br>Ala        | acg<br>Thr        | gcc<br>Ala<br>25  | tgt<br>Cys        | gac<br>Asp        | aat<br>Asn        | gct<br>Ala        | cca<br>Pro<br>30  | 96  |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-----|
| gaa<br>Glu        | gcc<br>Ala        | tgg<br>Trp        | gac<br>Asp        | ctg<br>Leu<br>35  | ctg<br>Leu        | cac<br>His        | aga<br>Arg        | gtg<br>Val        | ctg<br>Leu<br>40  | cca<br>Pro        | aca<br>Thr        | ttt<br>Phe        | atc<br>Ile        | atc<br>Ile<br>45  | tcc<br>Ser        | 144 |
| atc<br>Ile        | tgt<br>Cys        | ttc<br>Phe        | ttc<br>Phe<br>50  | Gly               | ctc<br>Leu        | cta<br>Leu        | Gly<br>ggg        | aac<br>Asn<br>55  | ctt<br>Leu        | ttt<br>Phe        | gtc<br>Val        | ctg<br>Leu        | ttg<br>Leu<br>60  | gtc<br>Val        | ttc<br>Phe        | 192 |
| ctc<br>Leu        | ctg<br>Leu        | ccc<br>Pro<br>65  | cgg<br>Arg        | cgg<br>Arg        | caa<br>Gln        | ctg<br>Leu        | aac<br>Asn<br>70  | gtg<br>Val        | gca<br>Ala        | gaa<br>Glu        | atc<br>Ile        | tac<br>Tyr<br>75  | ctg<br>Leu        | gcc<br>Ala        | aac<br>Asn        | 240 |
| ctg<br>Leu        | gca<br>Ala<br>80  | gcc<br>Ala        | tct<br>Ser        | gat<br>Asp        | ctg<br>Leu        | gtg<br>Val<br>85  | ttt<br>Phe        | gtc<br>Val        | ttg<br>Leu        | ggc               | ttg<br>Leu<br>90  | ccc<br>Pro        | ttc<br>Phe        | tgg<br>Trp        | gca<br>Ala        | 288 |
| gag<br>Glu<br>95  | aat<br>Asn        | atc<br>Ile        | tgg<br>Trp        | aac<br>Asn        | cag<br>Gln<br>100 | ttt<br>Phe        | aac<br>Asn        | tgg<br>Trp        | cct<br>Pro        | ttc<br>Phe<br>105 | gga<br>Gly        | gcc<br>Ala        | ctc<br>Leu        | ctc<br>Leu        | tgc<br>Cys<br>110 | 336 |
| cgt<br>Arg        | gtc<br>Val        | atc<br>Ile        | aac<br>Asn        | ggg<br>Gly<br>115 | gtc<br>Val        | atc<br>Ile        | aag<br>Lys        | gcc<br>Ala        | aat<br>Asn<br>120 | ttg<br>Leu        | ttc<br>Phe        | atc<br>Ile        | agc<br>Ser        | atc<br>Ile<br>125 | ttc<br>Phe        | 384 |
| ctg<br>Leu        | gtg<br>Val        | gtg<br>Val        | gcc<br>Ala<br>130 | atc<br>Ile        | agc<br>Ser        | cag<br>Gln        | gac<br>Asp        | cgc<br>Arg<br>135 | tac<br>Tyr        | cgc<br>Arg        | gtg<br>Val        | ctg<br>Leu        | gtg<br>Val<br>140 | cac<br>His        | cct<br>Pro        | 432 |
| atg<br>Met        | gcc<br>Ala        | agc<br>Ser<br>145 | gga<br>Gly        | agg<br>Arg        | cag<br>Gln        | cag<br>Gln        | cgg<br>Arg<br>150 | cgg<br>Arg        | agg<br>Arg        | cag<br>Gln        | gcc<br>Ala        | cgg<br>Arg<br>155 | gtc<br>Val        | acc<br>Thr        | tgc<br>Cys        | 480 |
| gtg<br>Val        | ctc<br>Leu<br>160 | atc<br>Ile        | tgg<br>Trp        | gtt<br>Val        | gtg<br>Val        | ggg<br>Gly<br>165 | ggc<br>Gly        | ctc<br>Leu        | ttg<br>Leu        | agc<br>Ser        | atc<br>Ile<br>170 | ccc<br>Pro        | aca<br>Thr        | ttc<br>Phe        | ctg<br>Leu        | 528 |
| ctg<br>Leu<br>175 | cga<br>Arg        | tcc<br>Ser        | atc<br>Ile        | caa<br>Gln        | gcc<br>Ala<br>180 | gtc<br>Val        | cca<br>Pro        | gat<br>Asp        | ctg<br>Leu        | aac<br>Asn<br>185 | atc<br>Ile        | acc<br>Thr        | gcc<br>Ala        | tgc<br>Cys        | atc<br>Ile<br>190 | 576 |
| ctg<br>Leu        | ctc<br>Leu        | ctc<br>Leu        | ccc<br>Pro        | cat<br>His<br>195 | gag<br>Glu        | gcc<br>Ala        | tgg<br>Trp        | cac<br>His        | ttt<br>Phe<br>200 | gca<br>Ala        | agg<br>Arg        | att<br>Ile        | gtg<br>Val        | gag<br>Glu<br>205 | tta<br>Leu        | 624 |
| aat<br>Asn        | att<br>Ile        | ctg<br>Leu        | ggt<br>Gly<br>210 | ttc<br>Phe        | ctc<br>Leu        | cta<br>Leu        | cca<br>Pro        | ctg<br>Leu<br>215 | gct<br>Ala        | gcg<br>Ala        | atc<br>Ile        | gtc<br>Val        | ttc<br>Phe<br>220 | ttc<br>Phe        | aac<br>Asn        | 672 |
| tac<br>Tyr        | cac<br>His        | atc<br>Ile<br>225 | ctg<br>Leu        | gcc<br>Ala        | tcc<br>Ser        | ctg<br>Leu        | cga<br>Arg<br>230 | acg<br>Thr        | cgg<br>Arg        | gag<br>Glu        | gag<br>Glu        | gtc<br>Val<br>235 | agc<br>Ser        | agg<br>Arg        | aca<br>Thr        | 720 |

|  | aga<br>Arg                   | gtg<br>Val<br>240 | cgg<br>Arg        | Gly               | ccg<br>Pro        | aag<br>Lys        | gat<br>Asp<br>245 | agc<br>Ser        | aag<br>Lys        | acc<br>Thr        | aca<br>Thr        | gcg<br>Ala<br>250 | ctg<br>Leu        | atc<br>Ile        | ctc<br>Leu        | acg<br>Thr        | 768   |
|--|------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------|
|  | ctc<br>Leu<br>255            | gtg<br>Val        | gtt<br>Val        | gcc<br>Ala        | ttc<br>Phe        | ctg<br>Leu<br>260 | gtc<br>Val        | tgc<br>Cys        | tgg<br>Trp        | gcc<br>Ala        | cct<br>Pro<br>265 | tac<br>Tyr        | cac<br>His        | ttc<br>Phe        | ttt<br>Phe        | gcc<br>Ala<br>270 | 816   |
|  | ttc<br>Phe                   | ctg<br>Leu        | gaa<br>Glu        | ttc<br>Phe        | tta<br>Leu<br>275 | ttc<br>Phe        | cag<br>Gln        | gtg<br>Val        | caa<br>Gln        | gca<br>Ala<br>280 | gtc<br>Val        | cga<br>Arg        | ggc<br>Gly        | tgc<br>Cys        | ttt<br>Phe<br>285 | tgg<br>Trp        | 864   |
|  | gag<br>Glu                   | gac<br>Asp        | ttc<br>Phe        | att<br>Ile<br>290 | gac<br>Asp        | ctg<br>Leu        | ggc<br>Gly        | ctg<br>Leu        | caa<br>Gln<br>295 | ttg<br>Leu        | gcc<br>Ala        | aac<br>Asn        | ttc<br>Phe        | ttt<br>Phe<br>300 | gcc<br>Ala        | ttc<br>Phe        | 912   |
|  | act<br>Thr                   | aac<br>Asn        | agc<br>Ser<br>305 | tcc<br>Ser        | ctg<br>Leu        | aat<br>Asn        | cca<br>Pro        | gta<br>Val<br>310 | att<br>Ile        | tat<br>Tyr        | gtc<br>Val        | ttt<br>Phe        | gtg<br>Val<br>315 | ggc<br>Gly        | cgg<br>Arg        | ctc<br>Leu        | 960   |
| 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1  | ttc<br>Phe                   | agg<br>Arg<br>320 | acc<br>Thr        | aag<br>Lys        | gtc<br>Val        | tgg<br>Trp        | gaa<br>Glu<br>325 | ctt<br>Leu        | tat<br>Tyr        | aaa<br>Lys        | caa<br>Gln        | tgc<br>Cys<br>330 | acc<br>Thr        | cct<br>Pro        | aaa<br>Lys        | agt<br>Ser        | 1008  |
| The state of the s | ctt<br>Leu<br>335            | gct<br>Ala        | cca<br>Pro        | ata<br>Ile        | tct<br>Ser        | tca<br>Ser<br>340 | tcc<br>Ser        | cat<br>His        | agg<br>Arg        | aaa<br>Lys        | gaa<br>Glu<br>345 | atc<br>Ile        | ttc<br>Phe        | caa<br>Gln        | ctt<br>Leu        | ttc<br>Phe<br>350 | 105.6 |
| C.   |                              | cgg<br>Arg        |                   | taaa              | acag              | jca t             | tgaa              | CC                |                   |                   |                   |                   |                   |                   |                   |                   | 1082  |
| To the time that the   | <210<br><211<br><212<br><213 | .> 3<br>?> F      | .0<br>53<br>PRT   | sapi              | ens               |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |       |
|  | <400                         | )> 1              | .0                |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |       |
|  | Met.                         | Ala               | Ser               | Ser               | ጥተካ               | Pro               | Dro               | Lou               | C1.,              | T 011             | C15               | C                 | C                 | 7                 | <b>~</b> 1        | <b>a</b>          | _     |

Met Ala Ser Ser Trp Pro Pro Leu Glu Leu Gln Ser Ser Asn Gln Ser

Gln Leu Phe Pro Gln Asn Ala Thr Ala Cys Asp Asn Ala Pro Glu Ala 25

Trp Asp Leu Leu His Arg Val Leu Pro Thr Phe Ile Ile Ser Ile Cys 40

Phe Phe Gly Leu Leu Gly Asn Leu Phe Val Leu Leu Val Phe Leu Leu 50 55

Pro Arg Arg Gln Leu Asn Val Ala Glu Ile Tyr Leu Ala Asn Leu Ala

| 65 70 75 80 | 65 | 70 | 75 | 80 |
|-------------|----|----|----|----|
|-------------|----|----|----|----|

Ala Ser Asp Leu Val Phe Val Leu Gly Leu Pro Phe Trp Ala Glu Asn 85 90 95

Ile Trp Asn Gln Phe Asn Trp Pro Phe Gly Ala Leu Leu Cys Arg Val
100 105 110

Ile Asn Gly Val Ile Lys Ala Asn Leu Phe Ile Ser Ile Phe Leu Val 115 120 125

Val Ala Ile Ser Gln Asp Arg Tyr Arg Val Leu Val His Pro Met Ala 130 135 140

Ser Gly Arg Gln Gln Arg Arg Gln Ala Arg Val Thr Cys Val Leu 145 150 155 160

Ile Trp Val Val Gly Gly Leu Leu Ser Ile Pro Thr Phe Leu Leu Arg 165 170 175

Ser Ile Gln Ala Val Pro Asp Leu Asn Ile Thr Ala Cys Ile Leu Leu 180 185 190

Leu Pro His Glu Ala Trp His Phe Ala Arg Ile Val Glu Leu Asn Ile 195 200 205

Leu Gly Phe Leu Leu Pro Leu Ala Ala Ile Val Phe Phe Asn Tyr His 210 215 220

Ile Leu Ala Ser Leu Arg Thr Arg Glu Glu Val Ser Arg Thr Arg Val 225 230 235 240

Arg Gly Pro Lys Asp Ser Lys Thr Thr Ala Leu Ile Leu Thr Leu Val 245 250 255

Val Ala Phe Leu Val Cys Trp Ala Pro Tyr His Phe Phe Ala Phe Leu 260 265 270

Glu Phe Leu Phe Gln Val Gln Ala Val Arg Gly Cys Phe Trp Glu Asp 275 280 285 .

Phe Ile Asp Leu Gly Leu Gln Leu Ala Asn Phe Phe Ala Phe Thr Asn 290 295 300

| Ser<br>305                   | Ser              | Leu                       | Asn               | Pro              | Val<br>310       | Ile              | Tyr              | Val               | Phe              | Val<br>315       |                  | Arg              | Leu               | Phe              | Arg<br>320       |     |   |
|------------------------------|------------------|---------------------------|-------------------|------------------|------------------|------------------|------------------|-------------------|------------------|------------------|------------------|------------------|-------------------|------------------|------------------|-----|---|
| Thr                          | Lys              | Val                       | Trp               | Glu<br>325       | Leu              | Tyr              | Lys              | Gln               | Cys<br>330       | Thr              | Pro              | Lys              | Ser               | Leu<br>335       | Ala              |     |   |
| Pro                          | Ile              | Ser                       | Ser<br>340        | Ser              | His              | Arg              | Lys              | Glu<br>345        | Ile              | Phe              | Gln              | Leu              | Phe<br>350        | Trp              | Arg              |     |   |
| Asn                          |                  |                           |                   |                  |                  |                  |                  |                   |                  |                  |                  |                  |                   |                  |                  |     |   |
| <210<br><211<br><212<br><213 | L> :             | 11<br>3733<br>DNA<br>homo | sap:              | iens             |                  |                  |                  |                   | ,                |                  |                  |                  |                   |                  |                  |     |   |
| <220<br><221<br><222         | L> (             | CDS                       | . (11             | 73)              |                  |                  |                  |                   |                  |                  |                  |                  |                   |                  |                  |     |   |
| <400<br>atg<br>Met<br>1      | ttc              | 11<br>tct<br>Ser          | ccc<br>Pro        | tgg<br>Trp<br>5  | aag<br>Lys       | ata<br>Ile       | tca<br>Ser       | atg<br>Met        | ttt<br>Phe<br>10 | ctg<br>Leu       | tct<br>Ser       | gtt<br>Val       | cgt<br>Arg        | gag<br>Glu<br>15 | gac<br>Asp       | 48  | 3 |
| tcc<br>Ser                   | gtg<br>Val       | ccc<br>Pro                | acc<br>Thr<br>20  | acg<br>Thr       | gcc<br>Ala       | tct<br>Ser       | ttc<br>Phe       | agc<br>Ser<br>25  | gcc<br>Ala       | gac<br>Asp       | atg<br>Met       | ctc<br>Leu       | aat<br>Asn<br>30  | gtc<br>Val       | acc<br>Thr       | 96  | ; |
| ttg<br>Leu                   | caa<br>Gln       | ggg<br>Gly<br>35          | ccc<br>Pro        | act<br>Thr       | ctt<br>Leu       | aac<br>Asn       | ggg<br>Gly<br>40 | acc<br>Thr        | ttt<br>Phe       | gcc<br>Ala       | cag<br>Gln       | agc<br>Ser<br>45 | aaa<br>Lys        | tgc<br>Cys       | ccc<br>Pro       | 144 | Ŀ |
| caa<br>Gln                   | gtg<br>Val<br>50 | gag<br>Glu                | tgg<br>Trp        | ctg<br>Leu       | ggc<br>Gly       | tgg<br>Trp<br>55 | ctc<br>Leu       | aac<br>Asn        | acc<br>Thr       | atc<br>Ile       | cag<br>Gln<br>60 | ccc<br>Pro       | ccc<br>Pro        | ttc<br>Phe       | ctc<br>Leu       | 192 | : |
| tgg<br>Trp<br>65             | gtg<br>Val       | ctg<br>Leu                | ttc<br>Phe        | gtg<br>Val       | ctg<br>Leu<br>70 | gcc<br>Ala       | acc<br>Thr       | cta<br>Leu        | gag<br>Glu       | aac<br>Asn<br>75 | atc<br>Ile       | ttt<br>Phe       | gtc<br>Val        | ctc<br>Leu       | agc<br>Ser<br>80 | 240 | I |
| gtc<br>Val                   | ttc<br>Phe       | tgc<br>Cys                | ctg<br>Leu        | cac<br>His<br>85 | aag<br>Lys       | agc<br>Ser       | agc<br>Ser       | tgc<br>Cys        | acg<br>Thr<br>90 | gtg<br>Val       | gca<br>Ala       | gag<br>Glu       | atc<br>Ile        | tac<br>Tyr<br>95 | ctg<br>Leu       | 288 |   |
| Gly<br>aaa                   | aac<br>Asn       | ctg<br>Leu                | gcc<br>Ala<br>100 | gca<br>Ala       | gca<br>Ala       | gac<br>Asp       | ctg<br>Leu       | atc<br>Ile<br>105 | ctg<br>Leu       | gcc<br>Ala       | tgc<br>Cys       | GJÀ<br>aaa       | ctg<br>Leu<br>110 | ccc<br>Pro       | ttc<br>Phe       | 336 |   |
| tgg                          | gcc              | atc                       | acc               | atc              | tcc              | aac              | aac              | ttc               | gac              | tgg              | ctc              | ttt              | ggg               | gag              | acg              | 384 |   |

| Trp               | Ala               | Ile<br>115        | Thr               | Ile               | Ser               | Asn               | Asn<br>120        | Phe               | Asp               | Trp               | Leu               | Phe<br>125        | Gly               | Glu               | Thr               |      |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| ctc<br>Leu        | tgc<br>Cys<br>130 | cgc<br>Arg        | gtg<br>Val        | gtg<br>Val        | aat<br>Asn        | gcc<br>Ala<br>135 | att<br>Ile        | atc<br>Ile        | tcc<br>Ser        | atg<br>Met        | aac<br>Asn<br>140 | ctg<br>Leu        | tac<br>Tyr        | agc<br>Ser        | agc<br>Ser        | 432  |
| atc<br>Ile<br>145 | tgt<br>Cys        | ttc<br>Phe        | ctg<br>Leu        | atg<br>Met        | ctg<br>Leu<br>150 | gtg<br>Val        | agc<br>Ser        | atc<br>Ile        | gac<br>Asp        | cgc<br>Arg<br>155 | tac<br>Tyr        | ctg<br>Leu        | gcc<br>Ala        | ctg<br>Leu        | gtg<br>Val<br>160 | 480  |
| aaa<br>Lys        | acc<br>Thr        | atg<br>Met        | tcc<br>Ser        | atg<br>Met<br>165 | ggc<br>Gly        | cgg<br>Arg        | atg<br>Met        | cgc<br>Arg        | ggc<br>Gly<br>170 | gtg<br>Val        | cgc<br>Arg        | tgg<br>Trp        | gcc<br>Ala        | aag<br>Lys<br>175 | ctc<br>Leu        | 528  |
| tac<br>Tyr        | agc<br>Ser        | ttg<br>Leu        | gtg<br>Val<br>180 | atc<br>Ile        | tgg<br>Trp        | Gly<br>ggg        | tgt<br>Cys        | acg<br>Thr<br>185 | ctg<br>Leu        | ctc<br>Leu        | ctg<br>Leu        | agc<br>Ser        | tca<br>Ser<br>190 | ccc<br>Pro        | atg<br>Met        | 576  |
| ctg<br>Leu        | gtg<br>Val        | ttc<br>Phe<br>195 | cgg<br>Arg        | acc<br>Thr        | atg<br>Met        | aag<br>Lys        | gag<br>Glu<br>200 | tac<br>Tyr        | agc<br>Ser        | gat<br>Asp        | gag<br>Glu        | ggc<br>Gly<br>205 | cac<br>His        | aac<br>Asn        | gtc<br>Val        | 624  |
| acc<br>Thr        | gct<br>Ala<br>210 | tgt<br>Cys        | gtc<br>Val        | atc<br>Ile        | agc<br>Ser        | tac<br>Tyr<br>215 | cca<br>Pro        | tcc<br>Ser        | ctc<br>Leu        | atc<br>Ile        | tgg<br>Trp<br>220 | gaa<br>Glu        | gtg<br>Val        | ttc<br>Phe        | acc<br>Thr        | 672  |
| aac<br>Asn<br>225 | atg<br>Met        | ctc<br>Leu        | ctg<br>Leu        | aat<br>Asn        | gtc<br>Val<br>230 | gtg<br>Val        | ggc<br>Gly        | ttc<br>Phe        | ctg<br>Leu        | ctg<br>Leu<br>235 | ccc<br>Pro        | ctg<br>Leu        | agt<br>Ser        | gtc<br>Val        | atc<br>Ile<br>240 | 720  |
| acc<br>Thr        | ttc<br>Phe        | tgc<br>Cys        | acg<br>Thr        | atg<br>Met<br>245 | cag<br>Gln        | atc<br>Ile        | atg<br>Met        | cag<br>Gln        | gtg<br>Val<br>250 | ctg<br>Leu        | cgg<br>Arg        | aac<br>Asn        | aac<br>Asn        | gag<br>Glu<br>255 | atg<br>Met        | 768  |
| cag<br>Gln        | aag<br>Lys        | ttc<br>Phe        | aag<br>Lys<br>260 | gag<br>Glu        | atc<br>Ile        | cag<br>Gln        | acg<br>Thr        | gag<br>Glu<br>265 | agg<br>Arg        | agg<br>Arg        | gcc<br>Ala        | acg<br>Thr        | gtg<br>Val<br>270 | cta<br>Leu        | gtc<br>Val        | 816  |
| ctg<br>Leu        | gtt<br>Val        | gtg<br>Val<br>275 | ctg<br>Leu        | ctg<br>Leu        | cta<br>Leu        | ttc<br>Phe        | atc<br>Ile<br>280 | atc<br>Ile        | tgc<br>Cys        | tgg<br>Trp        | ctg<br>Leu        | ccc<br>Pro<br>285 | ttc<br>Phe        | cag<br>Gln        | atc<br>Ile        | 864  |
| agc<br>Ser        | acc<br>Thr<br>290 | ttc<br>Phe        | ctg<br>Leu        | gat<br>Asp        | acg<br>Thr        | ctg<br>Leu<br>295 | cat<br>His        | cgc<br>Arg        | ctc<br>Leu        | Gly<br>ggc        | atc<br>Ile<br>300 | ctc<br>Leu        | tcc<br>Ser        | agc<br>Ser        | tgc<br>Cys        | 912  |
| cag<br>Gln<br>305 | gac<br>Asp        | gag<br>Glu        | cgc<br>Arg        | atc<br>Ile        | atc<br>Ile<br>310 | gat<br>Asp        | gta<br>Val        | atc<br>Ile        | aca<br>Thr        | cag<br>Gln<br>315 | atc<br>Ile        | gcc<br>Ala        | tcc<br>Ser        | ttc<br>Phe        | atg<br>Met<br>320 | 960  |
| gcc<br>Ala        | tac<br>Tyr        | agc<br>Ser        | aac<br>Asn        | agc<br>Ser<br>325 | tgc<br>Cys        | ctc<br>Leu        | aac<br>Asn        | cca<br>Pro        | ctg<br>Leu<br>330 | gtg<br>Val        | tac<br>Tyr        | gtg<br>Val        | atc<br>Ile        | gtg<br>Val<br>335 | ggc<br>Gly        | 1008 |
| aag<br>Lys        | cgc<br>Arg        | ttc<br>Phe        | cga<br>Arg        | aag<br>Lys        | aag<br>Lys        | tct<br>Ser        | tgg<br>Trp        | gag<br>Glu        | gtg<br>Val        | tac<br>Tyr        | cag<br>Gln        | gga<br>Gly        | gtg<br>Val        | tgc<br>Cys        | cag<br>Gln        | 1056 |

|                                 | 340                                |                                 | 345                        | 35                              | 0                      |      |
|---------------------------------|------------------------------------|---------------------------------|----------------------------|---------------------------------|------------------------|------|
| aaa ggg gg<br>Lys Gly Gl<br>35  | c tgc agg to<br>y Cys Arg Se<br>5  | ca gaa ccc<br>er Glu Pro<br>360 | att cag atg<br>Ile Gln Met | gag aac tc<br>Glu Asn Se<br>365 | c atg ggc<br>r Met Gly | 1104 |
| aca ctg cg<br>Thr Leu Ar<br>370 | g acc tcc at<br>g Thr Ser Il       | tc tcc gtg<br>Le Ser Val<br>375 | gaa cgc cag<br>Glu Arg Gln | att cac aa<br>Ile His Ly<br>380 | a ctg cag<br>s Leu Gln | 1152 |
|                                 | a ggg agc ag<br>a Gly Ser Ar<br>39 | g Gln                           | caaacg ccag                | cagggc tgct                     | gtgaat                 | 1203 |
| ttgtgtaagg                      | attgagggac                         | agttgctttt                      | cagcatgggc                 | ccaggaatgc                      | caaggagaca             | 1263 |
| tctatgcacg                      | accttgggaa                         | atgagttgat                      | gtctccggta                 | aaacaccgga                      | gactaattcc             | 1323 |
| tgccctgccc                      | aattttgcag                         | ggagcatggc                      | tgtgaggatg                 | gggtgaactc                      | acgcacagcc             | 1383 |
| aaggactcca                      | aaatcacaac                         | agcattactg                      | ttcttatttg                 | ctgccacacc                      | tgagccagcc             | 1443 |
| tgctccttcc                      | caggagtgga                         | ggaggcctgg                      | ggggagggag                 | aggagtgact                      | gagcttccct             | 1503 |
| cccgtgtgtt                      | ctccgtccct                         | gccccagcaa                      | gacaacttag                 | atctccagga                      | gaactgccat             | 1563 |
| ccagctttgg                      | tgcaatggct                         | gagtgcacaa                      | gtgagttgtt                 | gccctgggtt                      | tctttaatct             | 1623 |
| attcagctag                      | aactttgaag                         | gacaatttct                      | tgcattaata                 | aaggttaagc                      | cctgaggggt             | 1683 |
| ccctgataac                      | aacctggaga                         | ccaggatttt                      | atggctcccc                 | tcactgatgg                      | acaaggaggt             | 1743 |
| ctgtgccaaa                      | gaagaatcca                         | ataagcacat                      | attgagcact                 | tgctgtatat                      | gcagtattga             | 1803 |
| gcactgtagg                      | caagacccaa                         | gaaagagaag                      | gagccatctc                 | catcttgaag                      | gaactcaaag             | 1863 |
| actcaagtgg                      | gaacgactgg                         | gcactgccac                      | caccagaaag                 | ctgttcgacg                      | agacggtcga             | 1923 |
| gcagggtgct                      | gtgggtgata                         | tggacagcag                      | aagggggaga                 | ccaaggttcc                      | agctcaacca             | 1983 |
| ataactattg                      | cacaaccacc                         | tgtccctgcc                      | tcagttccct                 | tttatgtaac                      | atgaagtcgt             | 2043 |
| tgtgagggtt                      | aaaggcagta                         | acaggtataa                      | agtacttaga                 | aaagcaaagg                      | gtgctacgta             | 2103 |
| catgtgaggc                      | atcattacgc                         | agacgtaact                      | gggatatgtt                 | tactataagg                      | aaaagacact             | 2163 |
| gaggtctaga                      | aatagctccg                         | tggagcagaa                      | tcagtattgg                 | gagccggtgg                      | cggtgtgaag             | 2223 |
| caccagtgtc                      | tggcacacag                         | taggtgctca                      | ttggctccct                 | tccacctgtc                      | attcccacca             | 2283 |
| ccctgaggcc                      | ccaaccgcca                         | cacacacagg                      | agcatttgga                 | gagaaggcca                      | tgtcttcaaa             | 2343 |
| gtctgatttg                      | tgatgaggca                         | gaggaagata                      | tttctaatcg                 | gtcttgccca                      | gaggatcaca             | 2403 |
| gtgctgagac                      | ccccaccac                          | cagccggtac                      | ctgggaaggg                 | ggagagtgca                      | ggcctgctca             | 2463 |
| gggactgttc                      | ctgtctcagc                         | aaccaaggga                      | ttgttcctgt                 | caatcaatgg                      | tttattggaa             | 2523 |

| ggtggcccag | tatgagccct | agaagagtgt | gaaaaggaat | ggcaatggtg | ttcaccatcg | 2583  |
|------------|------------|------------|------------|------------|------------|-------|
| gcagtgccag | ggcagcactc | attcacttga | taaatgaata | tttattagct | ggttggagag | 2643  |
| ctagaacctg | gagagctaga | acctggagaa | ctagaacctg | gagggctaga | acctggagag | 2703  |
| gctagaacca | agaagggcta | gaacctggag | gggctagaac | ctagagaagc | taaaacctga | 2763  |
| gctagaagct | ggaggactag | aacctggagg | gctggaatct | gaagggctag | aacctggagg | 2823  |
| gctggaatct | ggagagctag | aacctggagg | gctagaacct | ggagggctag | aacctagaag | 2883  |
| ggctagaacc | tggagggctg | gaatctggag | agctagaacc | tggagggcta | gaacctggag | 2943  |
| ggctagaacc | tagaagggct | agaacctgga | gggctagaac | ctggcaggtt | agaacctaga | 3,003 |
| agggctagaa | cctggagagc | cagaacctgg | agggctagaa | cctggaaggg | ctagaacctg | 3063  |
| tagagctaga | acatggagag | ctagaacccg | gcaggctaga | acctggcaag | ctagaacctg | 3123  |
| gagggaatga | acctggaggg | ctagaacctg | gagaatgaga | aaaatttaca | tggcaaagag | 3183  |
| cccataaatc | ctgaccaatc | caactctgaa | ttttaaagca | aaagcgtgaa | aaaaaagatt | 3243  |
| ccctccttac | ccccaaccca | ctctttttc  | ccaccaccca | ctctcctctg | cctcagtaag | 3303  |
| tatctggagg | aagaaaacag | gtgaaagaag | aagtaaaaac | catttagtat | tagtattaga | 3363  |
| atgaagtcaa | actgtgccac | acatggtgaa | tgaaaaaaaa | aaaaaagagg | ctgtgttttg | 3423  |
| tcacacaggg | cagtcattca | gcaccagagc | acgtgatggt | ctgagactct | cttaggagca | 3483  |
| gagctctgcc | gcaatggcca | tgtggggatc | cacacctggt | ctgaggggca | actgagtctg | 3543  |
| cgggagaaga | gcggccctat | gcatggtgta | gatgccctga | taaagaacat | ctgtcctgtg | 3603  |
| aaagactcaa | tgagctgtta | tgttgtaaac | aggaagcatt | tcacatccaa | acgagaaaat | 3663  |
| catgtaaaca | tgtgtctttt | ctgtagagca | taataaatgg | atgaggtttt | tgcaaaaaaa | 3723  |
| aaaaaaaaa  |            |            |            |            |            | 3733  |

<210> 12 <211> 391

<212> PRT

<213> homo sapiens

<400> 12

Met Phe Ser Pro Trp Lys Ile Ser Met Phe Leu Ser Val Arg Glu Asp 1 5 10 15

Leu Gln Gly Pro Thr Leu Asn Gly Thr Phe Ala Gln Ser Lys Cys Pro 35 40 45

Gln Val Glu Trp Leu Gly Trp Leu Asn Thr Ile Gln Pro Pro Phe Leu 50 55 60

Trp Val Leu Phe Val Leu Ala Thr Leu Glu Asn Ile Phe Val Leu Ser 65 70 75 80

Val Phe Cys Leu His Lys Ser Ser Cys Thr Val Ala Glu Ile Tyr Leu 85 90 95

Gly Asn Leu Ala Ala Ala Asp Leu Ile Leu Ala Cys Gly Leu Pro Phe 100 105 110

Trp Ala Ile Thr Ile Ser Asn Asn Phe Asp Trp Leu Phe Gly Glu Thr
115 120 125

Leu Cys Arg Val Val Asn Ala Ile Ile Ser Met Asn Leu Tyr Ser Ser 130 135 140

Lys Thr Met Ser Met Gly Arg Met Arg Gly Val Arg Trp Ala Lys Leu 165 170 175

Tyr Ser Leu Val Ile Trp Gly Cys Thr Leu Leu Leu Ser Ser Pro Met 180 185 190

Leu Val Phe Arg Thr Met Lys Glu Tyr Ser Asp Glu Gly His Asn Val 195 200 205

Thr Ala Cys Val Ile Ser Tyr Pro Ser Leu Ile Trp Glu Val Phe Thr 210 215 220

Asn Met Leu Leu Asn Val Val Gly Phe Leu Leu Pro Leu Ser Val Ile 225 230 235 240

Thr Phe Cys Thr Met Gln Ile Met Gln Val Leu Arg Asn Asn Glu Met 245 250 255

| GIN                          | ьуs        | Phe                   | Lys<br>260 | Glu        | Ile        | Gln        | Thr        | Glu<br>265      | Arg        | Arg        | Ala        | Thr               | Val<br>270 |            | Val        |     |
|------------------------------|------------|-----------------------|------------|------------|------------|------------|------------|-----------------|------------|------------|------------|-------------------|------------|------------|------------|-----|
| Leu                          | Val        | Val<br>275            | Leu        | Leu        | Leu        | Phe        | Ile<br>280 | Ile             | Cys        | Trp        | Leu        | Pro<br>285        | Phe        | Gln        | Ile        |     |
| Ser                          | Thr<br>290 | Phe                   | Leu        | Asp        | Thr        | Leu<br>295 | His        | Arg             | Leu        | Gly        | Ile<br>300 | Leu               | Ser        | Ser        | Cys        |     |
| Gln<br>305                   | Asp        | Glu                   | Arg        | Ile        | Ile<br>310 | Asp        | Val        | Ile             | Thr        | Gln<br>315 | Ile        | Ala               | Ser        | Phe        | Met<br>320 |     |
| Ala                          | Tyr        | Ser                   | Asn        | Ser<br>325 | Cys        | Leu        | Asn        | Pro             | Leu<br>330 | Val        | Tyr        | Val               | Ile        | Val<br>335 | Gly        |     |
| Lys                          | Arg        | Phe                   | Arg<br>340 | Lys        | Lys        | Ser        | Trp        | Glu<br>345      | Val        | Tyr        | Gln        | Gly               | Val<br>350 | Cys        | Gln        |     |
| Lys                          | Gly        | Gly<br>355            | Cys        | Arg        | Ser        | Glu        | Pro<br>360 | Ile             | Gln        | Met        | Glu        | Asn<br>365        | Ser        | Met        | Gly        |     |
| Thr                          | Leu<br>370 | Arg                   | Thr        | Ser        | Ile        | Ser<br>375 | Val        | Glu             | Arg        | Gln        | Ile<br>380 | His               | Lys        | Leu        | Gln        |     |
| Asp<br>385                   | Trp        | Ala                   | Gly        | Ser        | Arg<br>390 | Gln        |            |                 |            |            |            |                   |            |            |            |     |
| <210<br><211<br><212<br><213 | > 1<br>> D | 3<br>766<br>NA<br>omo | sapi       | ens        |            |            |            |                 |            |            |            |                   |            |            |            |     |
| <220:<br><221:<br><222:      | > C        | DS<br>211)            | (1         | 431)       |            |            |            |                 |            |            |            |                   |            |            |            |     |
| <400:<br>aatt                | _          |                       | accg       | cggg       | c ag       | gcgg       | gcag       | tgc             | atcc       | aga a      | agcg       | ttta <sup>.</sup> | ta t       | tetg       | agcgc      | 60  |
|                              |            |                       |            |            |            |            |            |                 |            |            |            |                   |            |            | gcttt      | 120 |
| agaag                        | ggac       | cc to                 | gagc       | ccca       | g gc       | gccag      | gcca       | cag             | gact       | ctg (      | ctgca      | agago             | aa a       | ggtt       | gtgta      | 180 |
| cagat                        | agta       | ag go                 | cttta      | acgc       | c tag      | gctto      | cgaa       | atg<br>Met<br>1 | gat<br>Asp | aac<br>Asn | gtc<br>Val | ctc<br>Leu<br>5   | ccg<br>Pro | gtg<br>Val | gac<br>Asp | 234 |

| tca<br>Ser        | gac<br>Asp<br>10  | cto<br>Leu        | tcc<br>Ser        | cca<br>Pro        | a aac<br>Asn      | ato<br>Ile<br>15  | tcc<br>Ser        | act<br>Thr        | aac<br>Asn        | acc<br>Thr        | tcg<br>Ser<br>20  | gaa<br>Glu        | ccc<br>Pro        | aat<br>Asr        | cag<br>Gln        | 282 |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-----|
| ttc<br>Phe<br>25  | gtg<br>Val        | caa<br>Gln        | cca<br>Pro        | gcc               | tgg<br>Trp<br>30  | caa<br>Gln        | att<br>Ile        | gtc<br>Val        | ctt<br>Leu        | tgg<br>Trp<br>35  | gca<br>Ala        | gct<br>Ala        | gcc<br>Ala        | tac<br>Tyr        | acg<br>Thr<br>40  | 330 |
| gtc<br>Val        | att<br>Ile        | gtg<br>Val        | gtg<br>Val        | acc<br>Thr<br>45  | tct<br>Ser        | gtg<br>Val        | gtg<br>Val        | ggc               | aac<br>Asn<br>50  | gtg<br>Val        | gta<br>Val        | gtg<br>Val        | atg<br>Met        | tgg<br>Trp<br>55  | atc<br>Ile        | 378 |
| atc<br>Ile        | tta<br>Leu        | gcc<br>Ala        | cac<br>His<br>60  | aaa<br>Lys        | aga<br>Arg        | atg<br>Met        | agg<br>Arg        | aca<br>Thr<br>65  | gtg<br>Val        | acg<br>Thr        | aac<br>Asn        | tat<br>Tyr        | ttt<br>Phe<br>70  | ctg<br>Leu        | gtg<br>Val        | 426 |
| aac<br>Asn        | ctg<br>Leu        | gcc<br>Ala<br>75  | ttc<br>Phe        | gcg<br>Ala        | gag<br>Glu        | gcc<br>Ala        | tcc<br>Ser<br>80  | atg<br>Met        | gct<br>Ala        | gca<br>Ala        | ttc<br>Phe        | aat<br>Asn<br>85  | aca<br>Thr        | gtg<br>Val        | gtg<br>Val        | 474 |
| aac<br>Asn        | ttc<br>Phe<br>90  | acc<br>Thr        | tat<br>Tyr        | gct<br>Ala        | gtc<br>Val        | cac<br>His<br>95  | aac<br>Asn        | gaa<br>Glu        | tgg<br>Trp        | tac<br>Tyr        | tac<br>Tyr<br>100 | ggc               | ctg<br>Leu        | ttc<br>Phe        | tac<br>Tyr        | 522 |
| tgc<br>Cys<br>105 | aag<br>Lys        | ttc<br>Phe        | cac<br>His        | aac<br>Asn        | ttc<br>Phe<br>110 | ttt<br>Phe        | ccc<br>Pro        | atc<br>Ile        | gcc<br>Ala        | gct<br>Ala<br>115 | gtc<br>Val        | ttc<br>Phe        | gcc<br>Ala        | agt<br>Ser        | atc<br>Ile<br>120 | 570 |
| tac<br>Tyr        | tcc<br>Ser        | atg<br>Met        | acg<br>Thr        | gct<br>Ala<br>125 | gtg<br>Val        | gcc<br>Ala        | ttt<br>Phe        | gat<br>Asp        | agg<br>Arg<br>130 | tac<br>Tyr        | atg<br>Met        | gcc<br>Ala        | atc<br>Ile        | ata<br>Ile<br>135 | cat<br>His        | 618 |
| ccc<br>Pro        | ctc<br>Leu        | cag<br>Gln        | ccc<br>Pro<br>140 | cgg<br>Arg        | ctg<br>Leu        | tca<br>Ser        | gcc<br>Ala        | aca<br>Thr<br>145 | gcc<br>Ala        | acc<br>Thr        | aaa<br>Lys        | gtg<br>Val        | gtc<br>Val<br>150 | atc<br>Ile        | tgt<br>Cys        | 666 |
| gtc<br>Val        | atc<br>Ile        | tgg<br>Trp<br>155 | gtc<br>Val        | ctg<br>Leu        | gct<br>Ala        | ctc<br>Leu        | ctg<br>Leu<br>160 | ctg<br>Leu        | gcc<br>Ala        | ttc<br>Phe        | ccc<br>Pro        | cag<br>Gln<br>165 | ggc<br>Gly        | tac<br>Tyr        | tac<br>Tyr        | 714 |
| tca<br>Ser        | acc<br>Thr<br>170 | aca<br>Thr        | gag<br>Glu        | acc<br>Thr        | atg<br>Met        | ccc<br>Pro<br>175 | agc<br>Ser        | aga<br>Arg        | gtc<br>Val        | gtg<br>Val        | tgc<br>Cys<br>180 | atg<br>Met        | atc<br>Ile        | gaa<br>Glu        | tgg<br>Trp        | 762 |
| cca<br>Pro<br>185 | gag<br>Glu        | cat<br>His        | ccg<br>Pro        | aac<br>Asn        | aag<br>Lys<br>190 | att<br>Ile        | tat<br>Tyr        | gag<br>Glu        | aaa<br>Lys        | gtg<br>Val<br>195 | tac<br>Tyr        | cac<br>His        | atc<br>Ile        | tgt<br>Cys        | gtg<br>Val<br>200 | 810 |
| act<br>Thr        | gtg<br>Val        | ctg<br>Leu        | atc<br>Ile        | tac<br>Tyr<br>205 | ttc<br>Phe        | ctc<br>Leu        | ccc<br>Pro        | ctg<br>Leu        | ctg<br>Leu<br>210 | gtg<br>Val        | att<br>Ile        | ggc<br>Gly        | tat<br>Tyr        | gca<br>Ala<br>215 | tac<br>Tyr        | 858 |
| acc<br>Thr        | gta<br>Val        | gtg<br>Val        | gga<br>Gly<br>220 | atc<br>Ile        | aca<br>Thr        | cta<br>Leu        | tgg<br>Trp        | gcc<br>Ala<br>225 | agt<br>Ser        | gag<br>Glu        | atc<br>Ile        | ccc<br>Pro        | ggg<br>230        | gac<br>Asp        | tcc<br>Ser        | 906 |
| tct               | gac               | cgc               | ţac               | cac               | gag               | caa               | gtc               | tct               | gcc               | aag               | cgc               | aag               | gtg               | gtc               | aaa               | 954 |

| Ser               | Asp               | Arg<br>235        | Tyr               | His               | Glu               | Gln               | Val<br>240        | Ser               | Ala               | Lys               | Arg                                    | Lys<br>245        | Val               | Val               | Lys               |      |  |  |  |  |  |  |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--|-------------------|-------------------|-------------------|-------------------|------|--|--|--|--|--|--|
| atg<br>Met        | atg<br>Met<br>250 | att<br>Ile        | gtc<br>Val        | gtg<br>Val        | gtg<br>Val        | tgc<br>Cys<br>255 | acc<br>Thr        | ttc<br>Phe        | gcc<br>Ala        | atc<br>Ile        | tgc<br>Cys<br>260                      | tgg<br>Trp        | ctg<br>Leu        | ccc<br>Pro        | ttc<br>Phe        | 1002 |  |  |  |  |  |  |
| cac<br>His<br>265 | atc<br>Ile        | ttc<br>Phe        | ttc<br>Phe        | ctc<br>Leu        | ctg<br>Leu<br>270 | ccc<br>Pro        | tac<br>Tyr        | atc<br>Ile        | aac<br>Asn        | cca<br>Pro<br>275 | gat<br>Asp                             | ctc<br>Leu        | tac<br>Tyr        | ctg<br>Leu        | aag<br>Lys<br>280 | 1050 |  |  |  |  |  |  |
| aag<br>Lys        | ttt<br>Phe        | atc<br>Ile        | cag<br>Gln        | cag<br>Gln<br>285 | gtc<br>Val        | tac<br>Tyr        | ctg<br>Leu        | gcc<br>Ala        | atc<br>Ile<br>290 | atg<br>Met        | tgg<br>Trp                             | ctg<br>Leu        | gcc<br>Ala        | atg<br>Met<br>295 | agc<br>Ser        | 1098 |  |  |  |  |  |  |
| tcc<br>Ser        | acc<br>Thr        | atg<br>Met        | tac<br>Tyr<br>300 | aac<br>Asn        | ccc<br>Pro        | atc<br>Ile        | atc<br>Ile        | tac<br>Tyr<br>305 | tgc<br>Cys        | tgc<br>Cys        | ctc<br>Leu                             | aat<br>Asn        | gac<br>Asp<br>310 | agg<br>Arg        | ttc<br>Phe        | 1146 |  |  |  |  |  |  |
| cgt<br>Arg        | ctg<br>Leu        | ggc<br>Gly<br>315 | ttc<br>Phe        | aag<br>Lys        | cat<br>His        | gcc<br>Ala        | ttc<br>Phe<br>320 | cgg<br>Arg        | tgc<br>Cys        | tgc<br>Cys        | ccc<br>Pro                             | ttc<br>Phe<br>325 | atc<br>Ile        | agc<br>Ser        | gcc<br>Ala        | 1194 |  |  |  |  |  |  |
| ggc<br>Gly        | gac<br>Asp<br>330 | tat<br>Tyr        | gag<br>Glu        | GJA<br>aaa        | ctg<br>Leu        | gaa<br>Glu<br>335 | atg<br>Met        | aaa<br>Lys        | tcc<br>Ser        | acc<br>Thr        | cgg<br>Arg<br>340                      | tat<br>Tyr        | ctc<br>Leu        | cag<br>Gln        | acc<br>Thr        | 1242 |  |  |  |  |  |  |
| cag<br>Gln<br>345 | ggc<br>Gly        | agt<br>Ser        | gtg<br>Val        | tac<br>Tyr        | aaa<br>Lys<br>350 | gtc<br>Val        | agc<br>Ser        | cgc<br>Arg        | ctg<br>Leu        | gag<br>Glu<br>355 | acc<br>Thr                             | acc<br>Thr        | atc<br>Ile        | tcc<br>Ser        | aca<br>Thr<br>360 | 1290 |  |  |  |  |  |  |
| gtg<br>Val        | gtg<br>Val        | ggg<br>Gly        | gcc<br>Ala        | cac<br>His<br>365 | gag<br>Glu        | gag<br>Glu        | gag<br>Glu        | cca<br>Pro        | gag<br>Glu<br>370 | gac<br>Asp        | ggc<br>Gly                             | ccc<br>Pro        | aag<br>Lys        | gcc<br>Ala<br>375 | aca<br>Thr        | 1338 |  |  |  |  |  |  |
| ccc<br>Pro        | tcg<br>Ser        | tcc<br>Ser        | ctg<br>Leu<br>380 | gac<br>Asp        | ctg<br>Leu        | acc<br>Thr        | tcc<br>Ser        | aac<br>Asn<br>385 | tgc<br>Cys        | tct<br>Ser        | tca<br>Ser                             | cga<br>Arg        | agt<br>Ser<br>390 | gac<br>Asp        | tcc<br>Ser        | 1386 |  |  |  |  |  |  |
| aag<br>Lys        | Thr               | atg<br>Met<br>395 | aca<br>Thr        | gag<br>Glu        | agc<br>Ser        | ttc<br>Phe        | agc<br>Ser<br>400 | ttc<br>Phe        | tcc<br>Ser        | tcc<br>Ser        | aat<br>Asn                             | gtg<br>Val<br>405 | ctc<br>Leu        | tcc<br>Ser        |                   | 1431 |  |  |  |  |  |  |
| tagg              | ccac              | ag g              | gcct              | ttgg              | c ag              | gtgc              | agcc              | ccc               | actg              | cct               | ttga                                   | .cctg             | cc t              | ccct              | tcatg             | 1491 |  |  |  |  |  |  |
| catg              | gaaa              | tt c              | cctt              | catc              | t gg              | aacc              | atca              | gaa               | acac              | cct               | caca                                   | ctgg              | ga c              | ttgc              | aaaaa             | 1551 |  |  |  |  |  |  |
| gggt              | cagt              | at g              | ggtt              | aggg              | a aa              | acat              | tcca              | tcc               | ttga              | gtc               | aaaa                                   | aatc              | tc a              | attc              | ttccc             | 1611 |  |  |  |  |  |  |
| tatc              | tttg              | cc a              | ccct              | catg              | c tg              | tgtg              | actc              | aaa               | ccaa              | atc               | actg                                   | aact              | tt g              | ctga              | gcctg             | 1671 |  |  |  |  |  |  |
| taaa              | ataa              | aa g              | gtcg              | gacc              | a gc              | tttt              | cctc              | aag               | agcc              | caa               | tgca                                   | ttcc              | at t              | tctg              | gaagt             | 1731 |  |  |  |  |  |  |
| gact              | ttgg              | ct g              | catg              | cgag              | t gc              | tcat              | ttca              | gga               | tg                |                   | gactttggct gcatgcgagt gctcatttca ggatg |                   |                   |                   |                   |      |  |  |  |  |  |  |

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Gly Asn Val Val Val Met Trp Ile Ile Leu Ala His Lys Arg Met Arg 50 55 60

Thr Val Thr Asn Tyr Phe Leu Val Asn Leu Ala Phe Ala Glu Ala Ser 65 70 75 80

Met Ala Ala Phe Asn Thr Val Val Asn Phe Thr Tyr Ala Val His Asn 85 90 95

Glu Trp Tyr Tyr Gly Leu Phe Tyr Cys Lys Phe His Asn Phe Phe Pro 100 105 110

Ile Ala Val Phe Ala Ser Ile Tyr Ser Met Thr Ala Val Ala Phe 115 120 125

Asp Arg Tyr Met Ala Ile Ile His Pro Leu Gln Pro Arg Leu Ser Ala 130 135 140

Thr Ala Thr Lys Val Val Ile Cys Val Ile Trp Val Leu Ala Leu Leu 145 150 155 160

Leu Ala Phe Pro Gln Gly Tyr Tyr Ser Thr Thr Glu Thr Met Pro Ser 165 170 175

Arg Val Val Cys Met Ile Glu Trp Pro Glu His Pro Asn Lys Ile Tyr 180 185 190

Glu Lys Val Tyr His Ile Cys Val Thr Val Leu Ile Tyr Phe Leu Pro 195 200 205 Leu Leu Val Ile Gly Tyr Ala Tyr Thr Val Val Gly Ile Thr Leu Trp 210 215 220

Ala Ser Glu Ile Pro Gly Asp Ser Ser Asp Arg Tyr His Glu Gln Val 225 230 235 240

Ser Ala Lys Arg Lys Val Val Lys Met Met Ile Val Val Val Cys Thr 245 250 255

Phe Ala Ile Cys Trp Leu Pro Phe His Ile Phe Phe Leu Leu Pro Tyr 260 265 270

Ile Asn Pro Asp Leu Tyr Leu Lys Lys Phe Ile Gln Gln Val Tyr Leu 275 280 285

Ala Ile Met Trp Leu Ala Met Ser Ser Thr Met Tyr Asn Pro Ile Ile 290 295 300

Tyr Cys Cys Leu Asn Asp Arg Phe Arg Leu Gly Phe Lys His Ala Phe 305 310 315 320

Arg Cys Cys Pro Phe Ile Ser Ala Gly Asp Tyr Glu Gly Leu Glu Met 325 330 335

Lys Ser Thr Arg Tyr Leu Gln Thr Gln Gly Ser Val Tyr Lys Val Ser 340 345 350

Arg Leu Glu Thr Thr Ile Ser Thr Val Val Gly Ala His Glu Glu Glu 355 360 365

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| agaaggaccc tgagcccag gcgccagcca caggactctg ctgcagaggg gggttgtgta  | 180 |
| cagatagtag gctttacgcc tagcttcgaa atg gat aac gtc ctc ccg gtg gac<br>Met Asp Asn Val Leu Pro Val Asp<br>1 5  | 234 |
| tca gac ctc tcc cca aac atc tcc act aac acc tcg gaa ccc aat cag<br>Ser Asp Leu Ser Pro Asn Ile Ser Thr Asn Thr Ser Glu Pro Asn Gln<br>10 15 20        | 282 |
| ttc gtg caa cca gcc tgg caa att gtc ctt tgg gca gct gcc tac acg<br>Phe Val Gln Pro Ala Trp Gln Ile Val Leu Trp Ala Ala Ala Tyr Thr<br>25 30 35 40     | 330 |
| gtc att gtg gtg acc tct gtg gtg ggc aac gtg gta gtg atg tgg atc<br>Val Ile Val Val Thr Ser Val Val Gly Asn Val Val Val Met Trp Ile<br>45 50 55        | 378 |
| atc tta gcc cac aaa aga atg agg aca gtg acg aac tat ttt ctg gtg<br>Ile Leu Ala His Lys Arg Met Arg Thr Val Thr Asn Tyr Phe Leu Val<br>60 65 70        | 426 |
| aac ctg gcc ttc gcg gag gcc tcc atg gct gca ttc aat aca gtg gtg<br>Asn Leu Ala Phe Ala Glu Ala Ser Met Ala Ala Phe Asn Thr Val Val<br>75 80 85        | 474 |
| aac ttc acc tat gct gtc cac aac gaa tgg tac tac ggc ctg ttc tac<br>Asn Phe Thr Tyr Ala Val His Asn Glu Trp Tyr Tyr Gly Leu Phe Tyr<br>90 95 100       | 522 |
| tgc aag ttc cac aac ttc ttc ccc atc gcc gct gtc ttc gcc agt atc<br>Cys Lys Phe His Asn Phe Phe Pro Ile Ala Ala Val Phe Ala Ser Ile<br>105 110 115 120 | 570 |
| tac tcc atg acg gct gtg gcc ttt gat agg tac atg gcc atc ata cat<br>Tyr Ser Met Thr Ala Val Ala Phe Asp Arg Tyr Met Ala Ile Ile His<br>125 130 135     | 618 |
| ccc ctc cag ccc cgg ctg tca gcc aca gcc acc aaa gtg gtc atc tgt<br>Pro Leu Gln Pro Arg Leu Ser Ala Thr Ala Thr Lys Val Val Ile Cys<br>140 145 150     | 666 |
| gtc atc tgg gtc ctg gct ctc ctg ctg gcc ttc ccc cag ggc tac tac<br>Val Ile Trp Val Leu Ala Leu Leu Leu Ala Phe Pro Gln Gly Tyr Tyr<br>155 160 165     | 714 |
| tca acc aca gag acc atg ccc agc aga gtc gtg tgc atg atc gaa tgg   | 762 |

| Ser               | Thr<br>170        | Thr               | Glu               | Thr               | Met               | Pro<br>175        | Ser               | Arg               | Val               | Val               | Cys<br>180        | Met               | Ile               | Glu               | Trp               |      |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| cca<br>Pro<br>185 | gag<br>Glu        | cat<br>His        | ccg<br>Pro        | aac<br>Asn        | aag<br>Lys<br>190 | att<br>Ile        | tat<br>Tyr        | gag<br>Glu        | aaa<br>Lys        | gtg<br>Val<br>195 | tac<br>Tyr        | cac<br>His        | atc<br>Ile        | tgt<br>Cys        | gtg<br>Val<br>200 | 810  |
| act<br>Thr        | gtg<br>Val        | ctg<br>Leu        | atc<br>Ile        | tac<br>Tyr<br>205 | ttc<br>Phe        | ctc<br>Leu        | ccc<br>Pro        | ctg<br>Leu        | ctg<br>Leu<br>210 | gtg<br>Val        | att<br>Ile        | ggc<br>Gly        | tat<br>Tyr        | gca<br>Ala<br>215 | tac<br>Tyr        | 858  |
| acc<br>Thr        | gta<br>Val        | gtg<br>Val        | gga<br>Gly<br>220 | atc<br>Ile        | aca<br>Thr        | cta<br>Leu        | tgg<br>Trp        | gcc<br>Ala<br>225 | agt<br>Ser        | gag<br>Glu        | atc<br>Ile        | ccc<br>Pro        | ggg<br>Gly<br>230 | gac<br>Asp        | tcc<br>Ser        | 906  |
| tct<br>Ser        | gac<br>Asp        | cgc<br>Arg<br>235 | tac<br>Tyr        | cac<br>His        | gag<br>Glu        | caa<br>Gln        | gtc<br>Val<br>240 | tct<br>Ser        | gcc<br>Ala        | aag<br>Lys        | cgc<br>Arg        | aag<br>Lys<br>245 | gtg<br>Val        | gtc<br>Val        | aaa<br>Lys        | 954  |
| atg<br>Met        | atg<br>Met<br>250 | att<br>Ile        | gtc<br>Val        | gtg<br>Val        | gtg<br>Val        | tgc<br>Cys<br>255 | acc<br>Thr        | ttc<br>Phe        | gcc<br>Ala        | atc<br>Ile        | tgc<br>Cys<br>260 | tgg<br>Trp        | ctg<br>Leu        | ccc<br>Pro        | ttc<br>Phe        | 1002 |
| cac<br>His<br>265 | atc<br>Ile        | ttc<br>Phe        | ttc<br>Phe        | ctc<br>Leu        | ctg<br>Leu<br>270 | ccc<br>Pro        | tac<br>Tyr        | atc<br>Ile        | aac<br>Asn        | cca<br>Pro<br>275 | gat<br>Asp        | ctc<br>Leu        | tac<br>Tyr        | ctg<br>Leu        | aag<br>Lys<br>280 | 1050 |
| aag<br>Lys        | ttt<br>Phe        | atc<br>Ile        | cag<br>Gln        | cag<br>Gln<br>285 | gtc<br>Val        | tac<br>Tyr        | ctg<br>Leu        | gcc<br>Ala        | atc<br>Ile<br>290 | atg<br>Met        | tgg<br>Trp        | ctg<br>Leu        | gcc<br>Ala        | atg<br>Met<br>295 | agc<br>Ser        | 1098 |
| tcc<br>Ser        | acc<br>Thr        | atg<br>Met        | tac<br>Tyr<br>300 | aac<br>Asn        | ccc<br>Pro        | atc<br>Ile        | atc<br>Ile        | tac<br>Tyr<br>305 | tgc<br>Cys        | tgc<br>Cys        | ctc<br>Leu        | aat<br>Asn        | gac<br>Asp<br>310 | agg<br>Arg        | ttc<br>Phe        | 1146 |
| cgt<br>Arg        | ctg<br>Leu        | ggc<br>Gly<br>315 | ttc<br>Phe        | aag<br>Lys        | cat<br>His        | gcc<br>Ala        | ttc<br>Phe<br>320 | cgg<br>Arg        | tgc<br>Cys        | tgc<br>Cys        | ccc<br>Pro        | ttc<br>Phe<br>325 | atc<br>Ile        | agc<br>Ser        | gcc<br>Ala        | 1194 |
| ggc<br>Gly        | gac<br>Asp<br>330 | tat<br>Tyr        | gag<br>Glu        | GJÀ<br>aaa        | ctg<br>Leu        | gaa<br>Glu<br>335 | atg<br>Met        | aaa<br>Lys        | tcc<br>Ser        | acc<br>Thr        | cgg<br>Arg<br>340 | tat<br>Tyr        | ctc<br>Leu        | cag<br>Gln        | acc<br>Thr        | 1242 |
| cag<br>Gln<br>345 | ggc<br>Gly        | agt<br>Ser        | gtg<br>Val        | tac<br>Tyr        | aaa<br>Lys<br>350 | gtc<br>Val        | agc<br>Ser        | cgc<br>Arg        | ctg<br>Leu        | gag<br>Glu<br>355 | acc<br>Thr        | acc<br>Thr        | atc<br>Ile        | tcc<br>Ser        | aca<br>Thr<br>360 | 1290 |
| gtg<br>Val        | gtg<br>Val        | Gly               | gcc<br>Ala        | cac<br>His<br>365 | gag<br>Glu        | gag<br>Glu        | gag<br>Glu        | Pro               | gag<br>Glu<br>370 | gac<br>Asp        | ggc<br>Gly        | ccc<br>Pro        | aag<br>Lys        | gcc<br>Ala<br>375 | aca<br>Thr        | 1338 |
| ccc<br>Pro        | tcg<br>Ser        | tcc<br>Ser        | ctg<br>Leu<br>380 | gac<br>Asp        | ctg<br>Leu        | acc<br>Thr        | tcc<br>Ser        | aac<br>Asn<br>385 | tgc<br>Cys        | tct<br>Ser        | tca<br>Ser        | cga<br>Arg        | agt<br>Ser<br>390 | gac<br>Asp        | tcc<br>Ser        | 1386 |
| aag<br>Lys        | acc<br>Thr        | atg<br>Met        | aca<br>Thr        | gag<br>Glu        | agc<br>Ser        | ttc<br>Phe        | agc<br>Ser        | ttc<br>Phe        | tcc<br>Ser        | tcc<br>Ser        | aat<br>Asn        | gtg<br>Val        | ctc<br>Leu        | tcc<br>Ser        |                   | 1431 |

|            |            |            |            | 105        |            |      |
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| catggaaatt | cccttcatct | ggaaccatca | gaaacaccct | cacactggga | cttgcaaaaa | 1551 |
| gggtcagtat | gggttaggga | aaacattcca | tccttgagtc | aaaaaatctc | aattcttccc | 1611 |
| tatctttgcc | accctcatgc | tgtgtgactc | aaaccaaatc | actgaacttt | gctgagcctg | 1671 |
| taaaataaaa | ggtcggacca | gcttttcctc | aagagcccaa | tgcattccat | ttctggaagt | 1731 |
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395

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Gly Asn Val Val Val Met Trp Ile Ile Leu Ala His Lys Arg Met Arg 50 55 60

Thr Val Thr Asn Tyr Phe Leu Val Asn Leu Ala Phe Ala Glu Ala Ser 65 70 75 80

Met Ala Ala Phe Asn Thr Val Val Asn Phe Thr Tyr Ala Val His Asn 85 90 95

Glu Trp Tyr Tyr Gly Leu Phe Tyr Cys Lys Phe His Asn Phe Phe Pro 100 105 110

Ile Ala Val Phe Ala Ser Ile Tyr Ser Met Thr Ala Val Ala Phe 115 120 125

Asp Arg Tyr Met Ala Ile Ile His Pro Leu Gln Pro Arg Leu Ser Ala 130 135 140 Thr Ala Thr Lys Val Val Ile Cys Val Ile Trp Val Leu Ala Leu Leu 145 150 155 160

Leu Ala Phe Pro Gln Gly Tyr Tyr Ser Thr Thr Glu Thr Met Pro Ser 165 170 175

Arg Val Val Cys Met Ile Glu Trp Pro Glu His Pro Asn Lys Ile Tyr 180 185 190

Glu Lys Val Tyr His Ile Cys Val Thr Val Leu Ile Tyr Phe Leu Pro 195 200 205

Leu Leu Val Ile Gly Tyr Ala Tyr Thr Val Val Gly Ile Thr Leu Trp 210 215 220

Ala Ser Glu Ile Pro Gly Asp Ser Ser Asp Arg Tyr His Glu Gln Val 225 230 235 240

Ser Ala Lys Arg Lys Val Val Lys Met Met Ile Val Val Val Cys Thr 245 250 255

Phe Ala Ile Cys Trp Leu Pro Phe His Ile Phe Phe Leu Leu Pro Tyr 260 265 270

Ile Asn Pro Asp Leu Tyr Leu Lys Lys Phe Ile Gln Gln Val Tyr Leu 275 280 285

Ala Ile Met Trp Leu Ala Met Ser Ser Thr Met Tyr Asn Pro Ile Ile 290 295 300

Tyr Cys Cys Leu Asn Asp Arg Phe Arg Leu Gly Phe Lys His Ala Phe 305 310 315 320

Arg Cys Cys Pro Phe Ile Ser Ala Gly Asp Tyr Glu Gly Leu Glu Met 325 330 335

Lys Ser Thr Arg Tyr Leu Gln Thr Gln Gly Ser Val Tyr Lys Val Ser 340 345 350

Arg Leu Glu Thr Thr Ile Ser Thr Val Val Gly Ala His Glu Glu Glu 355 360 365

| Pro Glu Asp Gly Pro Lys Ala Thr Pro Ser Ser Leu Asp Leu Thr Ser<br>370 375 380   |                   |
|--|-------------------|
| Asn Cys Ser Ser Arg Ser Asp Ser Lys Thr Met Thr Glu Ser Phe Ser 385 390 395 400  |                   |
| Phe Ser Ser Asn Val Leu Ser<br>405   |                   |
| <210> 17<br><211> 1766<br><212> DNA<br><213> homo sapiens  |                   |
| <220> <221> CDS <222> (211)(1431)  |                   |
| <400> 17 aattcagage cacegeggge aggegggeag tgeateeaga agegtttata ttetgagege   | 60                |
| cagttcagct ttcaaaaaga gtgctgccca taaaaagcct tccaccctcc tgtctgcttt  | 120               |
| agaaggaccc tgagccccag gcgccagcca caggactctg ctgcagaggg gggttgtgta  | 180               |
| cagatagtag gctttacgcc tagcttcgaa atg gat aac gtc ctc ccg gtg gac<br>Met Asp Asn Val Leu Pro Val Asp<br>1 5   | 234               |
|  |                   |
| tca gac ctc tcc cca aac atc tcc act aac acc tcg gaa ccc aat cag<br>Ser Asp Leu Ser Pro Asn Ile Ser Thr Asn Thr Ser Glu Pro Asn Gln<br>10 15 20   | 282               |
| Ser Asp Leu Ser Pro Asn Ile Ser Thr Asn Thr Ser Glu Pro Asn Gln  | 282<br>330        |
| Ser Asp Leu Ser Pro Asn Ile Ser Thr Asn Thr Ser Glu Pro Asn Gln 10 15 20  ttc gtg caa cca gcc tgg caa att gtc ctt tgg gca gct gcc tac acg Phe Val Gln Pro Ala Trp Gln Ile Val Leu Trp Ala Ala Ala Tyr Thr  |                   |
| Ser Asp Leu Ser Pro Asn Ile Ser Thr Asn Thr Ser Glu Pro Asn Gln 10 15 20  ttc gtg caa cca gcc tgg caa att gtc ctt tgg gca gct gcc tac acg Phe Val Gln Pro Ala Trp Gln Ile Val Leu Trp Ala Ala Ala Tyr Thr 25 30 35 40  gtc att gtg gtg acc tct gtg gtg ggc aac gtg gta gtg atg tgg atc Val Ile Val Val Trp Ser Val Val Gly Asn Val Val Met Trp Ile | 330               |
| Ser Asp Leu Ser Pro Asn Ile Ser Thr Asn Thr Ser Glu Pro Asn Gln 10   | 330<br>378        |
| Ser Asp Leu Ser Pro Asn Ile Ser Thr Asn Thr Ser Glu Pro Asn Gln 10   | 330<br>378<br>426 |

| Cys<br>105        | Lys               | 5 Ph∈             | e His             | s Asr             | n Ph∈<br>110      | Ph∈               | Pro               | o Il∈             | e Ala             | a Ala<br>115      |                   | l Phe             | e Ala             | ı Sei             | 11e<br>120        |      |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| tac<br>Tyr        | tcc<br>Ser        | atg<br>Met        | acg<br>Thr        | gct<br>Ala<br>125 | ı Val             | gcc<br>Ala        | ttt<br>Phe        | gat<br>Asp        | agg<br>Arg<br>130 | Tyr               | ato<br>Met        | g gcc<br>: Ala    | ato<br>Ile        | ata<br>135        | cat<br>His        | 618  |
| ccc<br>Pro        | cto<br>Leu        | cag<br>Gln        | Pro<br>140        | Arg               | rctg<br>Leu       | tca<br>Ser        | gcc<br>Ala        | aca<br>Thr        | Ala               | acc<br>Thr        | aaa<br>Lys        | gtg<br>Val        | gtc<br>Val        | Il∈               | tgt<br>Cys        | 666  |
| gtc<br>Val        | ata<br>Ile        | tgg<br>Trp<br>155 | Val               | ctg<br>Leu        | gct<br>Ala        | ctc<br>Leu        | ctg<br>Leu<br>160 | Leu               | gcc               | ttc<br>Phe        | ccc<br>Pro        | cag<br>Gln<br>165 | Gly               | tac<br>Tyr        | tac<br>Tyr        | 714  |
| tca<br>Ser        | acc<br>Thr<br>170 | Thr               | gag<br>Glu        | acc<br>Thr        | atg<br>Met        | ccc<br>Pro<br>175 | agc<br>Ser        | aga<br>Arg        | gtc<br>Val        | gtg<br>Val        | tgc<br>Cys<br>180 | Met               | ato               | gaa<br>Glu        | tgg<br>Trp        | 762  |
| cca<br>Pro<br>185 | Glu               | cat<br>His        | ccg<br>Pro        | aac<br>Asn        | aag<br>Lys<br>190 | att<br>Ile        | tat<br>Tyr        | gag<br>Glu        | aaa<br>Lys        | gtg<br>Val<br>195 | tac<br>Tyr        | cac<br>His        | atc<br>Ile        | tgt<br>Cys        | gtg<br>Val<br>200 | 810  |
| act<br>Thr        | gtg<br>Val        | ctg<br>Leu        | atc<br>Ile        | tac<br>Tyr<br>205 | ttc<br>Phe        | ctc<br>Leu        | ccc<br>Pro        | ctg<br>Leu        | ctg<br>Leu<br>210 | gtg<br>Val        | att<br>Ile        | ggc<br>Gly        | tat<br>Tyr        | gca<br>Ala<br>215 | tac<br>Tyr        | 858  |
| acc<br>Thr        | gta<br>Val        | gtg<br>Val        | gga<br>Gly<br>220 | atc<br>Ile        | aca<br>Thr        | cta<br>Leu        | tgg<br>Trp        | gcc<br>Ala<br>225 | agt<br>Ser        | gag<br>Glu        | atc<br>Ile        | ccc<br>Pro        | ggg<br>Gly<br>230 | gac<br>Asp        | tcc<br>Ser        | 906  |
| tct<br>Ser        | gac<br>Asp        | cgc<br>Arg<br>235 | tac<br>Tyr        | cac<br>His        | gag<br>Glu        | caa<br>Gln        | gtc<br>Val<br>240 | tct<br>Ser        | gcc<br>Ala        | aag<br>Lys        | cgc<br>Arg        | aag<br>Lys<br>245 | gtg<br>Val        | gtc<br>Val        | aaa<br>Lys        | 954  |
| atg<br>Met        | atg<br>Met<br>250 | att<br>Ile        | gtc<br>Val        | gtg<br>Val        | gtg<br>Val        | tgc<br>Cys<br>255 | acc<br>Thr        | ttc<br>Phe        | gcc<br>Ala        | atc<br>Ile        | tgc<br>Cys<br>260 | tgg<br>Trp        | ctg<br>Leu        | ccc<br>Pro        | ttc<br>Phe        | 1002 |
| cac<br>His<br>265 | atc<br>Ile        | ttc<br>Phe        | ttc<br>Phe        | ctc<br>Leu        | ctg<br>Leu<br>270 | ccc<br>Pro        | tac<br>Tyr        | atc<br>Ile        | aac<br>Asn        | cca<br>Pro<br>275 | gat<br>Asp        | ctc<br>Leu        | tac<br>Tyr        | ctg<br>Leu        | aag<br>Lys<br>280 | 1050 |
| aag<br>Lys        | ttt<br>Phe        | atc<br>Ile        | cag<br>Gln        | cag<br>Gln<br>285 | gtc<br>Val        | tac<br>Tyr        | ctg<br>Leu        | gcc<br>Ala        | atc<br>Ile<br>290 | atg<br>Met        | tgg<br>Trp        | ctg<br>Leu        | gcc<br>Ala        | atg<br>Met<br>295 | agc<br>Ser        | 1098 |
| tcc<br>Ser        | acc<br>Thr        | atg<br>Met        | tac<br>Tyr<br>300 | aac<br>Asn        | ccc<br>Pro        | atc<br>Ile        | atc<br>Ile        | tac<br>Tyr<br>305 | tgc<br>Cys        | tgc<br>Cys        | ctc<br>Leu        | aat<br>Asn        | gac<br>Asp<br>310 | agg<br>Arg        | ttc<br>Phe        | 1146 |
| cgt<br>Arg        | ctg<br>Leu        | ggc<br>Gly<br>315 | ttc<br>Phe        | aag<br>Lys        | cat<br>His        | gcc<br>Ala        | ttc<br>Phe<br>320 | cgg<br>Arg        | tgc<br>Cys        | tgc<br>Cys        | ccc<br>Pro        | ttc<br>Phe<br>325 | atc<br>Ile        | agc<br>Ser        | gcc<br>Ala        | 1194 |
| ggc               | gac<br>Asp        | tat<br>Tyr        | gag<br>Glu        | Gly<br>aaa        | ctg<br>Leu        | gaa<br>Glu        | atg<br>Met        | aaa<br>Lys        | tcc<br>Ser        | acc<br>Thr        | cgg<br>Arg        | tat<br>Tyr        | ctc<br>Leu        | cag<br>Gln        | acc<br>Thr        | 1242 |

|                              | 330          | )                        |                   |                   |                   | 335        |                   |                   |                   |                       | 340        | )                 |                   |                       |                       |      |
|------------------------------|--------------|--------------------------|-------------------|-------------------|-------------------|------------|-------------------|-------------------|-------------------|-----------------------|------------|-------------------|-------------------|-----------------------|-----------------------|------|
| cag<br>Gln<br>345            | . GIy        | agt<br>Ser               | gtg<br>Val        | tac<br>Tyr        | aaa<br>Lys<br>350 | Val        | agc<br>Ser        | cgc<br>Arg        | ctg<br>Lei        | g gag<br>1 Glu<br>355 | Thr        | c aco             | ato               | c tco                 | c aca<br>r Thr<br>360 | 1290 |
| gtg<br>Val                   | gtg<br>Val   | . Gly                    | gcc<br>Ala        | cac<br>His<br>365 | gag<br>Glu        | gag<br>Glu | gag<br>Glu        | cca<br>Pro        | gag<br>Glu<br>370 | ı Asp                 | ggc        | c ccc             | c aag<br>Lys      | g gco<br>s Ala<br>375 | c aca<br>a Thr        | 1338 |
| ccc<br>Pro                   | tcg<br>Ser   | tcc<br>Ser               | ctg<br>Leu<br>380 | gac<br>Asp        | ctg<br>Leu        | acc<br>Thr | tcc<br>Ser        | aac<br>Asn<br>385 | . Сув             | tct<br>Ser            | tca<br>Ser | cga<br>Arg        | agt<br>Ser<br>390 | Asp                   | tcc<br>Ser            | 1386 |
| aag<br>Lys                   | acc<br>Thr   | Met<br>395               | aca<br>Thr        | gag<br>Glu        | agc<br>Ser        | ttc<br>Phe | agc<br>Ser<br>400 | ttc<br>Phe        | tcc<br>Ser        | tcc<br>Ser            | aat<br>Asn | gtg<br>Val<br>405 | Lev               | tcc<br>Ser            | :<br>-                | 1431 |
| tag                          | gcca         | cag                      | ggcci             | ttg               | gc ag             | ggtgo      | cagc              | c cc              | cact              | gcct                  | ttg        | acct              | gcc               | taca                  | ttcatg                | 1491 |
| cat                          | ggaa         | att                      | cccti             | cato              | ct g              | gaaco      | catc              | a ga              | aaca              | ccct                  | cac        | actg              | gga               | cttg                  | caaaaa                | 1551 |
| gggt                         | tcag         | tat                      | gggtt             | aggg              | ga aa             | aacat      | ttcc              | a tc              | cttg              | agtc                  | aaa        | aaat              | ctc               | aatt                  | cttccc                | 1611 |
| tato                         | cttt         | gcc                      | accct             | cato              | gc to             | gtgtg      | gact              | c aa              | acca              | aatc                  | act        | gaac              | ttt               | gctg                  | agcctg                | 1671 |
| taaa                         | aata         | aaa                      | ggtcg             | gaco              | ca go             | ctttt      | cct               | c aa              | gagc              | ccaa                  | tgc        | attc              | cat               | ttct                  | ggaagt                | 1731 |
| gact                         | ttg          | gct (                    | gcato             | gcgag             | gt go             | ctcat      | ttca              | a gg              | atg               |                       |            |                   |                   |                       |                       | 1766 |
| <210<br><211<br><212<br><213 | L> -<br>2> : | 18<br>407<br>PRT<br>homo | sapi              | ens.              |                   |            |                   |                   |                   |                       | ,          |                   |                   |                       |                       |      |
| <400                         | )> :         | 18                       |                   |                   |                   |            |                   |                   |                   |                       |            |                   |                   |                       |                       |      |
| Met<br>1                     | Asp          | Asn                      | Val               | Leu<br>5          | Pro               | Val        | Asp               | Ser               | Asp<br>10         | Leu                   | Ser        | Pro               | Asn               | Ile<br>15             | Ser                   |      |
| Thr                          | Asn          | Thr                      | Ser<br>20         | Glu               | Pro               | Asn        | Gln               | Phe<br>25         | Val               | Gln                   | Pro        | Ala               | Trp<br>30         | Gln                   | Ile                   |      |
| Val                          | Leu          | Trp<br>35                | Ala               | Ala               | Ala               |            | Thr<br>40         | Val               | Ile               | Val                   | Val        | Thr<br>45         | Ser               | Val                   | Val                   |      |
| Gly                          | Asn<br>50    | Val                      | Val               | Val :             |                   | Trp<br>55  | Ile               | Ile               | Leu               | Ala                   | His<br>60  | Lys               | Arg               | Met                   | Arg                   |      |
| Thr<br>65                    | Val          | Thr                      | Asn               |                   | Phe<br>70         | Leu '      | Val               | Asn               | Leu               | Ala<br>75             | Phe        | Ala               | Glu               | Ala                   | Ser<br>80             |      |

Met Ala Ala Phe Asn Thr Val Val Asn Phe Thr Tyr Ala Val His Asn 85 90 95

Glu Trp Tyr Tyr Gly Leu Phe Tyr Cys Lys Phe His Asn Phe Phe Pro 100 105 110

Ile Ala Ala Val Phe Ala Ser Ile Tyr Ser Met Thr Ala Val Ala Phe
115 120 125

Asp Arg Tyr Met Ala Ile Ile His Pro Leu Gln Pro Arg Leu Ser Ala 130 135 140

Thr Ala Thr Lys Val Val Ile Cys Val Ile Trp Val Leu Ala Leu Leu 145 150 155 160

Leu Ala Phe Pro Gln Gly Tyr Tyr Ser Thr Thr Glu Thr Met Pro Ser 165 170 175

Arg Val Val Cys Met Ile Glu Trp Pro Glu His Pro Asn Lys Ile Tyr 180 185 190

Glu Lys Val Tyr His Ile Cys Val Thr Val Leu Ile Tyr Phe Leu Pro 195 200 205

Leu Leu Val Ile Gly Tyr Ala Tyr Thr Val Val Gly Ile Thr Leu Trp 210 215 220

Ala Ser Glu Ile Pro Gly Asp Ser Ser Asp Arg Tyr His Glu Gln Val 225 230 235 240

Ser Ala Lys Arg Lys Val Val Lys Met Met Ile Val Val Val Cys Thr 245 250 255

Phe Ala Ile Cys Trp Leu Pro Phe His Ile Phe Phe Leu Leu Pro Tyr 260 265 270

Ile Asn Pro Asp Leu Tyr Leu Lys Lys Phe Ile Gln Gln Val Tyr Leu 275 280 285

Ala Ile Met Trp Leu Ala Met Ser Ser Thr Met Tyr Asn Pro Ile Ile 290 295 300

| Tyr Cys Cys Leu Asn Asp Arg Phe Arg Leu Gly Phe Lys His Ala Phe 305 310 315 320   |     |
|---|-----|
| Arg Cys Cys Pro Phe Ile Ser Ala Gly Asp Tyr Glu Gly Leu Glu Met<br>325 330 335  |     |
| Lys Ser Thr Arg Tyr Leu Gln Thr Gln Gly Ser Val Tyr Lys Val Ser<br>340 345 350  |     |
| Arg Leu Glu Thr Thr Ile Ser Thr Val Val Gly Ala His Glu Glu 355 360 365   |     |
| Pro Glu Asp Gly Pro Lys Ala Thr Pro Ser Ser Leu Asp Leu Thr Ser 370 380   |     |
| Asn Cys Ser Ser Arg Ser Asp Ser Lys Thr Met Thr Glu Ser Phe Ser 385 390 395 400   |     |
| Phe Ser Ser Asn Val Leu Ser<br>405  |     |
| <210> 19<br><211> 1766<br><212> DNA<br><213> homo sapiens   |     |
| <220> <221> CDS <222> (211)(1431)   |     |
| <400> 19  |     |
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| agaaggaccc tgagccccag gcgccagcca caggactctg ctgcagaggg gggttgtgta   | 120 |
| cagatagtag gctttacgcc tagcttcgaa atg gat aac gtc ctc ccg gtg gac  | 180 |
| Met Asp Asn Val Leu Pro Val Asp  1  5   | 234 |
| tca gac ctc tcc cca aac atc tcc act aac acc tcg gaa ccc aat cag<br>Ser Asp Leu Ser Pro Asn Ile Ser Thr Asn Thr Ser Glu Pro Asn Gln<br>10 15 20    | 282 |
| ttc gtg caa cca gcc tgg caa att gtc ctt tgg gca gct gcc tac acg<br>Phe Val Gln Pro Ala Trp Gln Ile Val Leu Trp Ala Ala Ala Tyr Thr<br>25 30 35 40 | 330 |
| gtc att gtg gtg acc tct gtg gtg ggc aac gtg gta gtg atg tgg atc   | 378 |

| Val               | Ile               | Val               | Val               | Thr<br>45         | Ser               | Val               | Val               | Gly               | Asn<br>50         | Val               | Val               | Val               | Met               | Trp               | Ile               |      |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| atc<br>Ile        | tta<br>Leu        | gcc<br>Ala        | cac<br>His<br>60  | aaa<br>Lys        | aga<br>Arg        | atg<br>Met        | agg<br>Arg        | aca<br>Thr<br>65  | gtg<br>Val        | acg<br>Thr        | aac<br>Asn        | tat<br>Tyr        | ttt<br>Phe<br>70  | ctg<br>Leu        | gtg<br>Val        | 426  |
| aac<br>Asn        | ctg<br>Leu        | gcc<br>Ala<br>75  | ttc<br>Phe        | gcg<br>Ala        | gag<br>Glu        | gcc<br>Ala        | tcc<br>Ser<br>80  | atg<br>Met        | gct<br>Ala        | gca<br>Ala        | ttc<br>Phe        | aat<br>Asn<br>85  | aca<br>Thr        | gtg<br>Val        | gtg<br>Val        | 474  |
| aac<br>Asn        | ttc<br>Phe<br>90  | acc<br>Thr        | tat<br>Tyr        | gct<br>Ala        | gtc<br>Val        | cac<br>His<br>95  | aac<br>Asn        | gaa<br>Glu        | tgg<br>Trp        | tac<br>Tyr        | tac<br>Tyr<br>100 | ggc<br>Gly        | ctg<br>Leu        | ttc<br>Phe        | tac<br>Tyr        | 522  |
| tgc<br>Cys<br>105 | aag<br>Lys        | ttc<br>Phe        | cac<br>His        | aac<br>Asn        | ttc<br>Phe<br>110 | ttt<br>Phe        | ccc<br>Pro        | atc<br>Ile        | gcc<br>Ala        | gct<br>Ala<br>115 | gtc<br>Val        | ttc<br>Phe        | gcc<br>Ala        | agt<br>Ser        | atc<br>Ile<br>120 | 570  |
| tac<br>Tyr        | tcc<br>Ser        | atg<br>Met        | acg<br>Thr        | gct<br>Ala<br>125 | gtg<br>Val        | gcc<br>Ala        | ttt<br>Phe        | gat<br>Asp        | agg<br>Arg<br>130 | tac<br>Tyr        | atg<br>Met        | gcc<br>Ala        | atc<br>Ile        | ata<br>Ile<br>135 | cat<br>His        | 618  |
| ccc<br>Pro        | ctc<br>Leu        | cag<br>Gln        | ccc<br>Pro<br>140 | cgg<br>Arg        | ctg<br>Leu        | tca<br>Ser        | gcc<br>Ala        | aca<br>Thr<br>145 | gcc<br>Ala        | acc<br>Thr        | aaa<br>Lys        | gtg<br>Val        | gtc<br>Val<br>150 | atc<br>Ile        | tgt<br>Cys        | 666  |
| gtc<br>Val        | atc<br>Ile        | tgg<br>Trp<br>155 | gtc<br>Val        | ctg<br>Leu        | gct<br>Ala        | ctc<br>Leu        | ctg<br>Leu<br>160 | ctg<br>Leu        | gcc<br>Ala        | ttc<br>Phe        | ccc<br>Pro        | cag<br>Gln<br>165 | ggc<br>Gly        | tac<br>Tyr        | tac<br>Tyr        | 714  |
| tca<br>Ser        | acc<br>Thr<br>170 | aca<br>Thr        | gag<br>Glu        | acc<br>Thr        | atg<br>Met        | ccc<br>Pro<br>175 | agc<br>Ser        | aga<br>Arg        | gtc<br>Val        | gtg<br>Val        | tgc<br>Cys<br>180 | atg<br>Met        | atc<br>Ile        | gaa<br>Glu        | tgg<br>Trp        | 762  |
| cca<br>Pro<br>185 | gag<br>Glu        | cat<br>His        | ccg<br>Pro        | aac<br>Asn        | aag<br>Lys<br>190 | att<br>Ile        | tat<br>Tyr        | gag<br>Glu        | aaa<br>Lys        | gtg<br>Val<br>195 | tac<br>Tyr        | cac<br>His        | atc<br>Ile        | tgt<br>Cys        | gtg<br>Val<br>200 | 810  |
| act<br>Thr        | gtg<br>Val        | ctg<br>Leu        | Ile               | tac<br>Tyr<br>205 | ttc<br>Phe        | ctc<br>Leu        | ccc<br>Pro        | Leu               | ctg<br>Leu<br>210 | gtg<br>Val        | att<br>Ile        | ggc<br>Gly        | tat<br>Tyr        | gca<br>Ala<br>215 | tac<br>Tyr        | 858  |
| acc<br>Thr        | gta<br>Val        | gtg<br>Val        | gga<br>Gly<br>220 | atc<br>Ile        | aca<br>Thr        | cta<br>Leu        | tgg<br>Trp        | gcc<br>Ala<br>225 | agt<br>Ser        | gag<br>Glu        | atc<br>Ile        | ccc<br>Pro        | 230<br>Gly<br>ggg | gac<br>Asp        | tcc<br>Ser        | 906  |
| tct<br>Ser        | gac<br>Asp        | cgc<br>Arg<br>235 | tac<br>Tyr        | cac<br>His        | gag<br>Glu        | caa<br>Gln        | gtc<br>Val<br>240 | tct<br>Ser        | gcc<br>Ala        | aag<br>Lys        | cgc<br>Arg        | aag<br>Lys<br>245 | gtg<br>Val        | gtc<br>Val        | aaa<br>Lys        | 954  |
| atg<br>Met        | atg<br>Met<br>250 | att<br>Ile        | gtc<br>Val        | gtg<br>Val        | gtg<br>Val        | tgc<br>Cys<br>255 | acc<br>Thr        | ttc<br>Phe        | gcc<br>Ala        | atc<br>Ile        | tgc<br>Cys<br>260 | tgg<br>Trp        | ctg<br>Leu        | ccc<br>Pro        | ttc<br>Phe        | 1002 |
| cac<br>His        | atc<br>Ile        | ttc<br>Phe        | ttc<br>Phe        | ctc<br>Leu        | ctg<br>Leu        | ccc<br>Pro        | tac<br>Tyr        | atc<br>Ile        | aac<br>Asn        | cca<br>Pro        | gat<br>Asp        | ctc<br>Leu        | tac<br>Tyr        | ctg<br>Leu        | aag<br>Lys        | 1050 |

| 265               |                   |                   |                   |                        | 270               |                   |                   |                   |                   | 275               |                   |                   |                   |                   | 280               |      |
|-------------------|-------------------|-------------------|-------------------|------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| aag<br>Lys        | ttt<br>Phe        | atc<br>Ile        | cag<br>Gln        | cag<br>Gln<br>285      | gtc<br>Val        | tac<br>Tyr        | ctg<br>Leu        | gcc<br>Ala        | atc<br>Ile<br>290 | atg<br>Met        | tgg<br>Trp        | ctg<br>Leu        | gcc<br>Ala        | atg<br>Met<br>295 | agc<br>Ser        | 1098 |
| tcc<br>Ser        | acc<br>Thr        | atg<br>Met        | tac<br>Tyr<br>300 | aac<br>Asn             | ccc<br>Pro        | atc<br>Ile        | atc<br>Ile        | tac<br>Tyr<br>305 | tgc<br>Cys        | tgc<br>Cys        | ctc<br>Leu        | aat<br>Asn        | gac<br>Asp<br>310 | agg<br>Arg        | ttc<br>Phe        | 1146 |
| cgt<br>Arg        | ctg<br>Leu        | ggc<br>Gly<br>315 | ttc<br>Phe        | aag<br>Lys             | cat<br>His        | gcc<br>Ala        | ttc<br>Phe<br>320 | cgg<br>Arg        | tgc<br>Cys        | tgc<br>Cys        | ccc<br>Pro        | ttc<br>Phe<br>325 | atc<br>Ile        | agc<br>Ser        | gcc<br>Ala        | 1194 |
| ggc<br>Gly        | gac<br>Asp<br>330 | tat<br>Tyr        | gag<br>Glu        | Gl <sup>A</sup><br>aaa | ctg<br>Leu        | gaa<br>Glu<br>335 | atg<br>Met        | aaa<br>Lys        | tcc<br>Ser        | acc<br>Thr        | cgg<br>Arg<br>340 | tat<br>Tyr        | ctc<br>Leu        | cag<br>Gln        | acc<br>Thr        | 1242 |
| cag<br>Gln<br>345 | ggc<br>Gly        | agt<br>Ser        | gtg<br>Val        | tac<br>Tyr             | aaa<br>Lys<br>350 | gtc<br>Val        | agc<br>Ser        | cgc<br>Arg        | ctg<br>Leu        | gag<br>Glu<br>355 | acc<br>Thr        | acc<br>Thr        | atc<br>Ile        | tcc<br>Ser        | aca<br>Thr<br>360 | 1290 |
| gtg<br>Val        | gtg<br>Val        | ggg<br>Gly        | gcc<br>Ala        | cac<br>His<br>365      | gag<br>Glu        | gag<br>Glu        | gag<br>Glu        | cca<br>Pro        | gag<br>Glu<br>370 | gac<br>Asp        | ggc<br>Gly        | ccc<br>Pro        | aag<br>Lys        | gcc<br>Ala<br>375 | aca<br>Thr        | 1338 |
| ccc<br>Pro        | tca<br>Ser        | tcc<br>Ser        | ctg<br>Leu<br>380 | gac<br>Asp             | ctg<br>Leu        | acc<br>Thr        | tcc<br>Ser        | aac<br>Asn<br>385 | tgc<br>Cys        | tct<br>Ser        | tca<br>Ser        | cga<br>Arg        | agt<br>Ser<br>390 | gac<br>Asp        | tcc<br>Ser        | 1386 |
| aag<br>Lys        | acc<br>Thr        | atg<br>Met<br>395 | aca<br>Thr        | gag<br>Glu             | agc<br>Ser        | ttc<br>Phe        | agc<br>Ser<br>400 | ttc<br>Phe        | tcc<br>Ser        | tcc<br>Ser        | aat<br>Asn        | gtg<br>Val<br>405 | ctc<br>Leu        | tcc<br>Ser        |                   | 1431 |
| tagg              | ccac              | ag g              | gcct              | ttgg                   | c ag              | gtgc              | agco              | ccc               | acto              | rcct              | ttga              | cctg              | rcc t             | ccct              | tcatg             | 1491 |
| catg              | gaaa              | itt c             | cctt              | cato                   | t gg              | raacc             | atca              | gaa               | acac              | cct               | caca              | ıctgg             | rga c             | ttgc              | aaaaa             | 1551 |
| gggt              | cagt              | at g              | ggtt              | aggg                   | a aa              | acat              | tcca              | tcc               | ttga              | igtc              | aaaa              | aatc              | tc a              | atto              | ttccc             | 1611 |
| tato              | tttg              | cc a              | ccct              | catg                   | c tg              | tgtg              | acto              | aaa               | ccaa              | atc               | actg              | raact             | tt g              | ctga              | .gcctg            | 1671 |
| taaa              | ataa              | aa g              | gtcg              | gacc                   | a gc              | tttt              | cctc              | aag               | agco              | caa               | tgca              | ttcc              | at t              | tctg              | gaagt             | 1731 |
| gact              | ttgg              | ct g              | catg              | cgag                   | t gc              | tcat              | ttca              | gga               | .tg               |                   |                   |                   |                   |                   |                   | 1766 |
| -210              | . 0               | ^                 |                   |                        |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |      |

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<211> 407

<212> PRT

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Met Asp Asn Val Leu Pro Val Asp Ser Asp Leu Ser Pro Asn Ile Ser 1 5 10 15

Thr Asn Thr Ser Glu Pro Asn Gln Phe Val Gln Pro Ala Trp Gln Ile 20 25 30

Val Leu Trp Ala Ala Ala Tyr Thr Val Ile Val Val Thr Ser Val Val 35 40 45

Gly Asn Val Val Val Met Trp Ile Ile Leu Ala His Lys Arg Met Arg 50 55 60

Thr Val Thr Asn Tyr Phe Leu Val Asn Leu Ala Phe Ala Glu Ala Ser 65 70 75 80

Met Ala Ala Phe Asn Thr Val Val Asn Phe Thr Tyr Ala Val His Asn 85 90 95

Glu Trp Tyr Tyr Gly Leu Phe Tyr Cys Lys Phe His Asn Phe Phe Pro 100 105 110

Ile Ala Ala Val Phe Ala Ser Ile Tyr Ser Met Thr Ala Val Ala Phe 115 120 125

Asp Arg Tyr Met Ala Ile Ile His Pro Leu Gln Pro Arg Leu Ser Ala 130 135 140

Thr Ala Thr Lys Val Val Ile Cys Val Ile Trp Val Leu Ala Leu Leu 145 150 155 160

Leu Ala Phe Pro Gln Gly Tyr Tyr Ser Thr Thr Glu Thr Met Pro Ser 165 170 175

Arg Val Val Cys Met Ile Glu Trp Pro Glu His Pro Asn Lys Ile Tyr 180 185 190

Glu Lys Val Tyr His Ile Cys Val Thr Val Leu Ile Tyr Phe Leu Pro 195 200 205

Leu Leu Val Ile Gly Tyr Ala Tyr Thr Val Val Gly Ile Thr Leu Trp 210 215 220

Ala Ser Glu Ile Pro Gly Asp Ser Ser Asp Arg Tyr His Glu Gln Val 225 230 235 240

| Ser                              | Ala        | Lys                    | Arg        | Lys<br>245 | Val        | Val        | Lys        | Met        | Met<br>250 | Ile        | Val        | Val        | Val        | Cys<br>255 | Thr        |
|----------------------------------|------------|------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Phe                              | Ala        | Ile                    | Cys<br>260 | Trp        | Leu        | Pro        | Phe        | His<br>265 | Ile        | Phe        | Phe        | Leu        | Leu<br>270 | Pro        | Tyr        |
| Ile                              | Asn        | Pro<br>275             | Asp        | Leu        | Tyr        | Leu        | Lys<br>280 | Lys        | Phe        | Ile        | Gln        | Gln<br>285 | Val        | Tyr        | Leu        |
| Ala                              | Ile<br>290 | Met                    | Trp        | Leu        | Ala        | Met<br>295 | Ser        | Ser        | Thr        | Met        | Tyr<br>300 | Asn        | Pro        | Ile        | Ile        |
| Туг<br>305                       | Cys        | Cys                    | Leu        | Asn        | Asp<br>310 | Arg        | Phe        | Arg        | Leu        | Gly<br>315 | Phe        | Lys        | His        | Ala        | Phe<br>320 |
| Arg                              | Cys        | Cys                    | Pro        | Phe<br>325 | Ile        | Ser        | Ala        | Gly        | Asp<br>330 | Tyr        | Glu        | Gly        | Leu        | Glu<br>335 | Met        |
| Lys                              | Ser        | Thr                    | Arg<br>340 | Tyr        | Leu        | Gln        | Thr        | Gln<br>345 | Gly        | Ser        | Val        | Tyr        | Lys<br>350 | Val        | Ser        |
| Arg                              | Leu        | Glu<br>355             | Thr        | Thr        | Ile        | Ser        | Thr<br>360 | Val        | Val        | Gly        | Ala        | His<br>365 | Glu        | Glu        | Glu        |
| Pro                              | Glu<br>370 | Asp                    | Gly        | Pro        | Lys        | Ala<br>375 | Thr        | Pro        | Ser        | Ser        | Leu<br>380 | Asp        | Leu        | Thr        | Ser        |
| Asn<br>385                       | Cys        | Ser                    | Ser        | Arg        | Ser<br>390 | Asp        | Ser        | Lys        | Thr        | Met<br>395 | Thr        | Glu        | Ser        | Phe        | Ser<br>400 |
| Phe                              | Ser        | Ser                    |            | Val<br>405 | Leu        | Ser        |            |            |            |            |            |            |            |            |            |
| <210:<br><211:<br><212:<br><213: | > 1<br>> D | 1<br>826<br>NA<br>.omo | sapi       | ens        |            |            |            |            |            |            |            |            |            |            |            |

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| Met<br>1   | Ala               | Ser               | Arg               | Leu<br>5          | Thr        | Leu               | Leu               | Thr               | Leu<br>10         | Leu        | Leu               | Leu               | Leu               | Leu<br>15         | Ala        |     |
|------------|-------------------|-------------------|-------------------|-------------------|------------|-------------------|-------------------|-------------------|-------------------|------------|-------------------|-------------------|-------------------|-------------------|------------|-----|
|            |                   |                   | gcc<br>Ala<br>20  |                   |            |                   |                   |                   |                   |            |                   |                   |                   |                   |            | 156 |
| gat<br>Asp | cca<br>Pro        | gag<br>Glu<br>35  | agt<br>Ser        | ttg<br>Leu        | caa<br>Gln | gac<br>Asp        | aga<br>Arg<br>40  | Gly               | gaa<br>Glu        | Gly<br>aaa | aag<br>Lys        | gtc<br>Val<br>45  | gca<br>Ala        | aca<br>Thr        | aca<br>Thr | 204 |
| gtt<br>Val | atc<br>Ile<br>50  | tcc<br>Ser        | aag<br>Lys        | atg<br>Met        | cta<br>Leu | ttc<br>Phe<br>55  | gtt<br>Val        | gaa<br>Glu        | ccc<br>Pro        | atc<br>Ile | ctg<br>Leu<br>60  | gag<br>Glu        | gtt<br>Val        | tcc<br>Ser        | agc<br>Ser | 252 |
|            |                   |                   | acc<br>Thr        |                   |            |                   |                   |                   |                   |            |                   |                   |                   |                   |            | 300 |
|            |                   |                   | gat<br>Asp        |                   |            |                   |                   |                   |                   |            |                   |                   |                   |                   |            | 348 |
| caa<br>Gln | ccc<br>Pro        | acc<br>Thr        | atc<br>Ile<br>100 | caa<br>Gln        | ccc<br>Pro | acc<br>Thr        | caa<br>Gln        | cca<br>Pro<br>105 | act<br>Thr        | acc<br>Thr | cag<br>Gln        | ctc<br>Leu        | cca<br>Pro<br>110 | aca<br>Thr        | gat<br>Asp | 396 |
|            |                   |                   | cag<br>Gln        |                   |            |                   |                   |                   |                   |            |                   |                   |                   |                   |            | 444 |
| ctc<br>Leu | tgc<br>Cys<br>130 | tct<br>Ser        | gac<br>Asp        | ttg<br>Leu        | gag<br>Glu | agt<br>Ser<br>135 | cat<br>His        | tca<br>Ser        | aca<br>Thr        | gag<br>Glu | gcc<br>Ala<br>140 | gtg<br>Val        | ttg<br>Leu        | Gly               | gat<br>Asp | 492 |
|            |                   |                   | gat<br>Asp        |                   |            |                   |                   |                   |                   |            |                   |                   |                   |                   |            | 540 |
| aag<br>Lys | aag<br>Lys        | gtg<br>Val        | gag<br>Glu        | acc<br>Thr<br>165 | Asn        | Met               | Ala               | Phe               | tcc<br>Ser<br>170 | cca<br>Pro | ttc<br>Phe        | agc<br>Ser        | atc<br>Ile        | gcc<br>Ala<br>175 | agc<br>Ser | 588 |
| ctc<br>Leu | ctt<br>Leu        | acc<br>Thr        | cag<br>Gln<br>180 | gtc<br>Val        | ctg<br>Leu | ctc<br>Leu        | ggg<br>ggg        | gct<br>Ala<br>185 | ggg<br>ggg        | cag<br>Gln | aac<br>Asn        | acc<br>Thr        | aaa<br>Lys<br>190 | aca<br>Thr        | aac<br>Asn | 636 |
| ctg<br>Leu | gag<br>Glu        | agc<br>Ser<br>195 | atc<br>Ile        | ctc<br>Leu        | tct<br>Ser | tac<br>Tyr        | ccc<br>Pro<br>200 | aag<br>Lys        | gac<br>Asp        | ttc<br>Phe | acc<br>Thr        | tgt<br>Cys<br>205 | gtc<br>Val        | cac<br>His        | cag<br>Gln | 684 |
| gcc<br>Ala | ctg<br>Leu<br>210 | aag<br>Lys        | ggc<br>Gly        | ttc<br>Phe        | acg<br>Thr | acc<br>Thr<br>215 | aaa<br>Lys        | ggt<br>Gly        | gtc<br>Val        | acc<br>Thr | tca<br>Ser<br>220 | gtc<br>Val        | tct<br>Ser        | cag<br>Gln        | atc<br>Ile | 732 |
| ttc<br>Phe | cac<br>His        | agc<br>Ser        | cca<br>Pro        | gac<br>Asp        | ctg<br>Leu | gcc<br>Ala        | ata<br>Ile        | agg<br>Arg        | gac<br>Asp        | acc<br>Thr | ttt<br>Phe        | gtg<br>Val        | aat<br>Asn        | gcc<br>Ala        | tct<br>Ser | 780 |

| 225               |                   |                   |                   |                   | 230               |                   |                   |                   |                   | 235               |                   |                   |                   |                   | 240               |      |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| cgg<br>Arg        | acc<br>Thr        | ctg<br>Leu        | tac<br>Tyr        | agc<br>Ser<br>245 | agc<br>Ser        | agc<br>Ser        | ccc<br>Pro        | aga<br>Arg        | gtc<br>Val<br>250 | cta<br>Leu        | ago<br>Ser        | aac<br>Asn        | aac<br>Asn        | agt<br>Ser<br>255 | gac<br>Asp        | 828  |
| gcc<br>Ala        | aac<br>Asn        | ttg<br>Leu        | gag<br>Glu<br>260 | Leu               | atc<br>Ile        | aac<br>Asn        | acc<br>Thr        | tgg<br>Trp<br>265 | Val               | gcc<br>Ala        | aag<br>Lys        | aac<br>Asn        | acc<br>Thr<br>270 | aac<br>Asn        | aac<br>Asn        | 876  |
| aag<br>Lys        | atc<br>Ile        | agc<br>Ser<br>275 | Arg               | ctg<br>Leu        | cta<br>Leu        | gac<br>Asp        | agt<br>Ser<br>280 | ctg<br>Leu        | ccc<br>Pro        | tcc<br>Ser        | gat<br>Asp        | acc<br>Thr<br>285 | cgc<br>Arg        | ctt<br>Leu        | gtc<br>Val        | 924  |
| ctc<br>Leu        | ctc<br>Leu<br>290 | aat<br>Asn        | gct<br>Ala        | atc<br>Ile        | tac<br>Tyr        | ctg<br>Leu<br>295 | agt<br>Ser        | gcc<br>Ala        | aag<br>Lys        | tgg<br>Trp        | aag<br>Lys<br>300 | aca<br>Thr        | aca<br>Thr        | ttt<br>Phe        | gat<br>Asp        | 972  |
| ccc<br>Pro<br>305 | aag<br>Lys        | aaa<br>Lys        | acc<br>Thr        | aga<br>Arg        | atg<br>Met<br>310 | gaa<br>Glu        | ccc<br>Pro        | ttt<br>Phe        | cac<br>His        | ttc<br>Phe<br>315 | aaa<br>Lys        | aac<br>Asn        | tca<br>Ser        | gtt<br>Val        | ata<br>Ile<br>320 | 1020 |
| aaa<br>Lys        | gtg<br>Val        | ccc<br>Pro        | atg<br>Met        | atg<br>Met<br>325 | aat<br>Asn        | agc<br>Ser        | aag<br>Lys        | aag<br>Lys        | tac<br>Tyr<br>330 | cct<br>Pro        | gtg<br>Val        | gcc<br>Ala        | cat<br>His        | ttc<br>Phe<br>335 | att<br>Ile        | 1068 |
| gac<br>Asp        | caa<br>Gln        | act<br>Thr        | ttg<br>Leu<br>340 | aaa<br>Lys        | gcc<br>Ala        | aag<br>Lys        | gtg<br>Val        | ggg<br>Gly<br>345 | cag<br>Gln        | ctg<br>Leu        | cag<br>Gln        | ctc<br>Leu        | tcc<br>Ser<br>350 | cac<br>His        | aat<br>Asn        | 1116 |
| ctg<br>Leu        | agt<br>Ser        | ttg<br>Leu<br>355 | gtg<br>Val        | atc<br>Ile        | ctg<br>Leu        | gta<br>Val        | ccc<br>Pro<br>360 | cag<br>Gln        | aac<br>Asn        | ctg<br>Leu        | aaa<br>Lys        | cat<br>His<br>365 | cgt<br>Arg        | ctt<br>Leu        | gaa<br>Glu        | 1164 |
| gac<br>Asp        | atg<br>Met<br>370 | gaa<br>Glu        | cag<br>Gln        | gct<br>Ala        | ctc<br>Leu        | agc<br>Ser<br>375 | cct<br>Pro        | tct<br>Ser        | gtt<br>Val        | ttc<br>Phe        | aag<br>Lys<br>380 | gcc<br>Ala        | atc<br>Ile        | atg<br>Met        | gag<br>Glu        | 1212 |
| aaa<br>Lys<br>385 | ctg<br>Leu        | gag<br>Glu        | atg<br>Met        | tcc<br>Ser        | aag<br>Lys<br>390 | ttc<br>Phe        | cag<br>Gln        | ccc<br>Pro        | act<br>Thr        | ctc<br>Leu<br>395 | cta<br>Leu        | aca<br>Thr        | cta<br>Leu        | ccc<br>Pro        | cgc<br>Arg<br>400 | 1260 |
| atc<br>Ile        | aaa<br>Lys        | gtg<br>Val        | acg<br>Thr        | acc<br>Thr<br>405 | agc<br>Ser        | cag<br>Gln        | gat<br>Asp        | atg<br>Met        | ctc<br>Leu<br>410 | tca<br>Ser        | atc<br>Ile        | atg<br>Met        | gag<br>Glu        | aaa<br>Lys<br>415 | ttg<br>Leu        | 1308 |
| gaa<br>Glu        | ttc<br>Phe        | ttc<br>Phe        | gat<br>Asp<br>420 | ttt<br>Phe        | tct<br>Ser        | tat<br>Tyr        | gac<br>Asp        | ctt<br>Leu<br>425 | aac<br>Asn        | ctg<br>Leu        | tgt<br>Cys        | Gly<br>aaa        | ctg<br>Leu<br>430 | aca<br>Thr        | gag<br>Glu        | 1356 |
| gac<br>Asp        | cca<br>Pro        | gat<br>Asp<br>435 | ctt<br>Leu        | cag<br>Gln        | gtt<br>Val        | tct<br>Ser        | gcg<br>Ala<br>440 | atg<br>Met        | cag<br>Gln        | cac<br>His        | cag<br>Gln        | aca<br>Thr<br>445 | gtg<br>Val        | ctg<br>Leu        | gaa<br>Glu        | 1404 |
| ctg<br>Leu        | aca<br>Thr<br>450 | gag<br>Glu        | act<br>Thr        | ggg               | gtg<br>Val        | gag<br>Glu<br>455 | gcg<br>Ala        | gct<br>Ala        | gca<br>Ala        | gcc<br>Ala        | tcc<br>Ser<br>460 | gcc<br>Ala        | atc<br>Ile        | tct<br>Ser        | gtg<br>Val        | 1452 |

| 465                      | Arg                | Thr                            | Leu                     | Leu                    | Val<br>470        | Phe                     | Glu                     | Val                     | Gln                     | Gln<br>475        | Pro                     | Phe                     | Leu                     | Phe               | 480               | 1500 |
|--------------------------|--------------------|--------------------------------|-------------------------|------------------------|-------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------|-------------------------|-------------------------|-------------------------|-------------------|-------------------|------|
| ctc<br>Leu               | tgg<br>Trp         | gac<br>Asp                     | cag<br>Gln              | cag<br>Gln<br>485      | cac<br>His        | aag<br>Lys              | ttc<br>Phe              | cct<br>Pro              | gtc<br>Val<br>490       | ttc<br>Phe        | atg<br>Met              | GJÀ<br>aaa              | cga<br>Arg              | gta<br>Val<br>495 | tat<br>Tyr        | 1548 |
| gac<br>Asp               | ccc<br>Pro         | agg<br>Arg                     | gcc<br>Ala<br>500       |                        | gacc              | tgc (                   | agga                    | tcag                    | gt t                    | aggg              | cgag                    | c gc                    | tacc                    | tctc              |                   | 1600 |
| cag                      | cctc               | agc                            | tctc                    | agtt                   | gc a              | gccci                   | tgct                    | g ct                    | gcct                    | gcct              | gga                     | cttg                    | ccc                     | ctgc              | caccto            | 1660 |
| ctg                      | cctc               | agg                            | tgtc                    | cgcta                  | at c              | cacca                   | aaaa                    | g gg                    | ctcc                    | tgag              | ggt                     | ctgg                    | gca                     | aggg              | acctgo            | 1720 |
| ttc                      | tatt               | agc                            | cctt                    | ctcca                  | at g              | gccct                   | gcc                     | a tg                    | ctct                    | ccaa              | acc                     | actt                    | ttt                     | gcag              | ctttct            | 1780 |
| cta                      | gttc               | aag                            | ttca                    | ccaga                  | ac to             | ctata                   | aaata                   | a aa                    | acct                    | gaca              | gac                     | cat                     |                         |                   |                   | 1826 |
| <21<br><21<br><21<br><21 | 1><br>2>           | 22<br>500<br>PRT<br>homo       | sap:                    | iens                   |                   |                         |                         |                         |                         |                   |                         |                         |                         |                   |                   |      |
| <40                      | 0> :               | 22                             |                         |                        |                   |                         |                         |                         |                         |                   |                         |                         |                         |                   |                   |      |
|                          |                    |                                | Arg                     | Leu<br>5               | Thr               | Leu                     | Leu                     | Thr                     | Leu<br>10               | Leu               | Leu                     | Leu                     | Leu                     | Leu<br>15         | Ala               |      |
| Met<br>1                 | Ala                | Ser                            |                         | 5                      |                   |                         |                         |                         | 10                      |                   |                         |                         |                         |                   |                   |      |
| Met<br>1<br>Gly          | Ala<br>Asp         | Ser                            | Ala<br>20               | 5<br>Ser               | Ser               | Asn                     | Pro                     | Asn<br>25               | 10<br>Ala               | Thr               | Ser                     | Ser                     | Ser<br>30               | 15                | Gln               |      |
| Met<br>1<br>Gly<br>Asp   | Ala<br>Asp         | Ser<br>Arg<br>Glu<br>35        | Ala<br>20<br>Ser        | 5<br>Ser<br>Leu        | Ser<br>Gln        | Asn<br>Asp              | Pro<br>Arg<br>40<br>Val | Asn<br>25<br>Gly<br>Glu | 10<br>Ala<br>Glu        | Thr<br>Gly<br>Ile | Ser<br>Lys<br>Leu       | Ser<br>Val<br>45        | Ser<br>30<br>Ala        | 15<br>Ser         | Gln<br>Thr        | •    |
| Met<br>1<br>Gly<br>Asp   | Ala Asp Pro Ile 50 | Ser<br>Arg<br>Glu<br>35<br>Ser | Ala<br>20<br>Ser<br>Lys | 5<br>Ser<br>Leu<br>Met | Ser<br>Gln<br>Leu | Asn<br>Asp<br>Phe<br>55 | Pro<br>Arg<br>40<br>Val | Asn<br>25<br>Gly<br>Glu | 10<br>Ala<br>Glu<br>Pro | Thr<br>Gly<br>Ile | Ser<br>Lys<br>Leu<br>60 | Ser<br>Val<br>45<br>Glu | Ser<br>30<br>Ala<br>Val | 15<br>Ser<br>Thr  | Gln<br>Thr<br>Ser | •    |

Gln Pro Thr Ile Gln Pro Thr Gln Pro Thr Thr Gln Leu Pro Thr Asp 100 105 110

Ser Pro Thr Gln Pro Thr Thr Gly Ser Phe Cys Pro Gly Pro Val Thr 115 120 125

Leu Cys Ser Asp Leu Glu Ser His Ser Thr Glu Ala Val Leu Gly Asp 130 135 140

Ala Leu Val Asp Phe Ser Leu Lys Leu Tyr His Ala Phe Ser Ala Met 145 150 155 160

Lys Lys Val Glu Thr Asn Met Ala Phe Ser Pro Phe Ser Ile Ala Ser 165 170 175

Leu Leu Thr Gln Val Leu Leu Gly Ala Gly Gln Asn Thr Lys Thr Asn 180 185 190

Leu Glu Ser Ile Leu Ser Tyr Pro Lys Asp Phe Thr Cys Val His Gln 195 200 205

Ala Leu Lys Gly Phe Thr Thr Lys Gly Val Thr Ser Val Ser Gln Ile 210 215 220

Phe His Ser Pro Asp Leu Ala Ile Arg Asp Thr Phe Val Asn Ala Ser 225 230 235 240

Arg Thr Leu Tyr Ser Ser Ser Pro Arg Val Leu Ser Asn Asn Ser Asp 245 250 255

Ala Asn Leu Glu Leu Ile Asn Thr Trp Val Ala Lys Asn Thr Asn Asn 260 265 270

Lys Ile Ser Arg Leu Leu Asp Ser Leu Pro Ser Asp Thr Arg Leu Val 275 280 285

Leu Leu Asn Ala Ile Tyr Leu Ser Ala Lys Trp Lys Thr Thr Phe Asp 290 295 300

Pro Lys Lys Thr Arg Met Glu Pro Phe His Phe Lys Asn Ser Val Ile 305 310 315 315

Lys Val Pro Met Met Asn Ser Lys Lys Tyr Pro Val Ala His Phe Ile 325 330 335

Asp Gln Thr Leu Lys Ala Lys Val Gly Gln Leu Gln Leu Ser His Asn

|              |            |              | 340        |            |            |            |            | 345        |            |            |            |            | 350        |            |            |
|--------------|------------|--------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Leu          | Ser        | Leu<br>355   | Val        | Ile        | Leu        | Val        | Pro<br>360 | Gln        | Asn        | Leu        | Lys        | His<br>365 | Arg        | Leu        | Glu .      |
| Asp          | Met<br>370 | Glu          | Gln        | Ala        | Leu        | Ser<br>375 | Pro        | Ser        | Val        | Phe        | Lys<br>380 | Ala        | Ile        | Met        | Glu        |
| Lys<br>385   | Leu        | Glu          | Met        | Ser        | Lys<br>390 | Phe        | Gln        | Pro        | Thr        | Leu<br>395 | Leu        | Thr        | Leu        | Pro        | Arg<br>400 |
| Ile          | Lys        | Val          | Thr        | Thr<br>405 | Ser        | Gln        | Asp        | Met        | Leu<br>410 | Ser        | Ile        | Met        | Glu        | Lys<br>415 | Leu        |
| Glu          | Phe        | Phe          | Asp<br>420 | Phe        | Ser        | Tyr        | Asp        | Leu<br>425 | Asn        | Leu        | Cys        | Gly        | Leu<br>430 | Thr        | Glu        |
| Asp          | Pro        | Asp<br>435   | Leu        | Gln        | Val        | Ser        | Ala<br>440 | Met        | Gln        | His        | Gln        | Thr<br>445 | Val        | Leu        | Glu        |
| Leu          | Thr<br>450 | Glu          | Thr        | Gly        | Val        | Glu<br>455 | Ala        | Ala        | Ala        | Ala        | Ser<br>460 | Ala        | Ile        | Ser        | Val        |
| Ala<br>465   | Arg        | Thr          | Leu        | Leu        | Val<br>470 | Phe        | Glu        | Val        | Gln        | Gln<br>475 | Pro        | Phe        | Leu        | Phe        | Val<br>480 |
| Leu          | Trp        | Asp          | Gln        | Gln<br>485 | His        | Lys        | Phe        | Pro        | Val<br>490 | Phe        | Met        | Gly        | Arg        | Val<br>495 | Tyr        |
| Asp          | Pro        | Arg          | Ala<br>500 |            |            |            |            |            |            |            |            |            |            |            |            |
| <210         | > 2        | 23           |            |            |            |            |            |            |            |            |            |            |            |            |            |
| <211         |            | 1826         |            |            |            |            |            |            |            |            |            |            |            |            |            |
| <212<br><213 |            | ONA<br>nomo  | sapi       | ens        |            |            |            |            |            |            |            |            |            |            |            |
| <220         | >          |              |            |            |            |            |            |            |            |            |            |            |            |            |            |
| <221         | > (        | CDS<br>(61). | .(15       | 60)        |            |            |            |            |            |            |            |            |            |            |            |
| <400         |            | 23           |            |            |            |            |            |            |            |            |            |            |            |            |            |
| agtc         | rgca       | ict g        | gage       | tgcc       | t gg       | tgac       | caga       | agt        | ttgg       | agt        | ccgc       | tgac       | gt c       | gccg       | cccag      |

atg gcc tcc agg ctg acc ctg ctg acc ctc ctg ctg ctg ctg gct

Met Ala Ser Arg Leu Thr Leu Leu Thr Leu Leu Leu Leu Leu Ala

60

108

| 1                 |                   |                   |                   | 5                 |                   |                   |                   |                    | 10                     |                   |                   |                   |                   | 15                     |                   |     |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--------------------|------------------------|-------------------|-------------------|-------------------|-------------------|------------------------|-------------------|-----|
| ggg               | gat<br>Asp        | aga<br>Arg        | gcc<br>Ala<br>20  | tcc<br>Ser        | tca<br>Ser        | aat<br>Asn        | cca<br>Pro        | a aat<br>Asn<br>25 | gct<br>Ala             | acc<br>Thr        | ago<br>Ser        | tcc<br>Ser        | ago<br>Ser<br>30  | tcc<br>Ser             | cag<br>Gln        | 156 |
| gat<br>Asp        | cca<br>Pro        | gag<br>Glu<br>35  | agt<br>Ser        | ttg<br>Leu        | r caa<br>Gln      | gac<br>Asp        | aga<br>Arg<br>40  | ggc<br>Gly         | gaa<br>Glu             | Gly               | aag<br>Lys        | gtc<br>Val<br>45  | gca<br>Ala        | aca<br>Thr             | aca<br>Thr        | 204 |
| gtt<br>Val        | ato<br>Ile<br>50  | tcc<br>Ser        | aag<br>Lys        | atg<br>Met        | cta<br>Leu        | ttc<br>Phe<br>55  | gtt<br>Val        | gaa<br>Glu         | ccc<br>Pro             | ato               | ctg<br>Leu<br>60  | gag<br>Glu        | gtt<br>Val        | tcc<br>Ser             | agc<br>Ser        | 252 |
| ttg<br>Leu<br>65  | ccg<br>Pro        | aca<br>Thr        | acc<br>Thr        | aac<br>Asn        | tca<br>Ser<br>70  | aca<br>Thr        | acc<br>Thr        | aat<br>Asn         | tca<br>Ser             | gcc<br>Ala<br>75  | acc<br>Thr        | aaa<br>Lys        | ata<br>Ile        | aca<br>Thr             | gct<br>Ala<br>80  | 300 |
| aat<br>Asn        | acc<br>Thr        | act<br>Thr        | gat<br>Asp        | gaa<br>Glu<br>85  | ccc<br>Pro        | acc<br>Thr        | aca<br>Thr        | caa<br>Gln         | ccc<br>Pro<br>90       | acc<br>Thr        | aca<br>Thr        | gag<br>Glu        | ccc<br>Pro        | acc<br>Thr<br>95       | acc<br>Thr        | 348 |
| caa<br>Gln        | ccc<br>Pro        | acc<br>Thr        | atc<br>Ile<br>100 | caa<br>Gln        | ccc<br>Pro        | acc<br>Thr        | caa<br>Gln        | cca<br>Pro<br>105  | act<br>Thr             | acc<br>Thr        | cag<br>Gln        | ctc<br>Leu        | cca<br>Pro<br>110 | aca<br>Thr             | gat<br>Asp        | 396 |
| tct<br>Ser        | cct<br>Pro        | acc<br>Thr<br>115 | cag<br>Gln        | ccc<br>Pro        | act<br>Thr        | act<br>Thr        | ggg<br>Gly<br>120 | tcc<br>Ser         | ttc<br>Phe             | tgc<br>Cys        | cca<br>Pro        | gga<br>Gly<br>125 | cct<br>Pro        | gtt<br>Val             | act<br>Thr        | 444 |
| ctc<br>Leu        | tgc<br>Cys<br>130 | tct<br>Ser        | gac<br>Asp        | ttg<br>Leu        | gag<br>Glu        | agt<br>Ser<br>135 | cat<br>His        | tca<br>Ser         | aca<br>Thr             | gag<br>Glu        | gcc<br>Ala<br>140 | gtg<br>Val        | ttg<br>Leu        | Gl <sup>A</sup><br>aaa | gat<br>Asp        | 492 |
| gct<br>Ala<br>145 | ttg<br>Leu        | gta<br>Val        | gat<br>Asp        | ttc<br>Phe        | tcc<br>Ser<br>150 | ctg<br>Leu        | aag<br>Lys        | ctc<br>Leu         | tac<br>Tyr             | cac<br>His<br>155 | gcc<br>Ala        | ttc<br>Phe        | tca<br>Ser        | gca<br>Ala             | atg<br>Met<br>160 | 540 |
| aag<br>Lys        | aag<br>Lys        | gtg<br>Val        | gag<br>Glu        | acc<br>Thr<br>165 | aac<br>Asn        | atg<br>Met        | gcc<br>Ala        | ttt<br>Phe         | tcc<br>Ser<br>170      | cca<br>Pro        | ttc<br>Phe        | agc<br>Ser        | atc<br>Ile        | gcc<br>Ala<br>175      | agc<br>Ser        | 588 |
| ctc<br>Leu        | ctt<br>Leu        | acc<br>Thr        | cag<br>Gln<br>180 | gtc<br>Val        | ctg<br>Leu        | ctc<br>Leu        | Gly<br>ggg        | gct<br>Ala<br>185  | Gl <sup>A</sup><br>aaa | cag<br>Gln        | aac<br>Asn        | acc<br>Thr        | aaa<br>Lys<br>190 | aca<br>Thr             | aac<br>Asn        | 636 |
| ctg<br>Leu        | gag<br>Glu        | agc<br>Ser<br>195 | atc<br>Ile        | ctc<br>Leu        | tct<br>Ser        | tac<br>Tyr        | ccc<br>Pro<br>200 | aag<br>Lys         | gac<br>Asp             | ttc<br>Phe        | acc<br>Thr        | tgt<br>Cys<br>205 | gtc<br>Val        | cac<br>His             | cag<br>Gln        | 684 |
| Ala               | ctg<br>Leu<br>210 | aag<br>Lys        | ggc               | ttc<br>Phe        | acg<br>Thr        | acc<br>Thr<br>215 | aaa<br>Lys        | ggt<br>Gly         | gtc<br>Val             | acc<br>Thr        | tca<br>Ser<br>220 | gtc<br>Val        | tct<br>Ser        | cag<br>Gln             | atc<br>Ile        | 732 |
| ttc<br>Phe<br>225 | cac<br>His        | agc<br>Ser        | cca<br>Pro        | gac<br>Asp        | ctg<br>Leu<br>230 | gcc<br>Ala        | ata<br>Ile        | agg<br>Arg         | gac<br>Asp             | acc<br>Thr<br>235 | ttt<br>Phe        | gtg<br>Val        | aat<br>Asn        | gcc<br>Ala             | tct<br>Ser<br>240 | 780 |

| cgg<br>Ara        | acc<br>Thr        | ctg               | tac               | agc               | agc<br>Ser        | agc               | CCC               | aga               | gtc               | cta               | agc               | aac               | aac               | agt               | gac               | 828  |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| 111.9             | 1111              | Бей               | TYL               | 245               |                   | 261               | PLO               | Arg               | 250               | ьeu               | ser               | ASII              | ASN               | 255               | Asp               |      |
| gcc<br>Ala        | aac<br>Asn        | ttg<br>Leu        | gag<br>Glu<br>260 | ctc<br>Leu        | atc<br>Ile        | aac<br>Asn        | acc<br>Thr        | tgg<br>Trp<br>265 | gtg<br>Val        | gcc<br>Ala        | aag<br>Lys        | aac<br>Asn        | acc<br>Thr<br>270 | aac<br>Asn        | aac<br>Asn        | 876  |
| aag<br>Lys        | atc<br>Ile        | agc<br>Ser<br>275 | cgg<br>Arg        | ctg<br>Leu        | cta<br>Leu        | gac<br>Asp        | agt<br>Ser<br>280 | ctg<br>Leu        | ccc<br>Pro        | tcc<br>Ser        | gat<br>Asp        | acc<br>Thr<br>285 | cgc<br>Arg        | ctt<br>Leu        | gtc<br>Val        | 924  |
| ctc<br>Leu        | ctc<br>Leu<br>290 | aat<br>Asn        | gct<br>Ala        | atc<br>Ile        | tac<br>Tyr        | ctg<br>Leu<br>295 | agt<br>Ser        | gcc<br>Ala        | aag<br>Lys        | tgg<br>Trp        | aag<br>Lys<br>300 | aca<br>Thr        | aca<br>Thr        | ttt<br>Phe        | gat<br>Asp        | 972  |
| ccc<br>Pro<br>305 | aag<br>Lys        | aaa<br>Lys        | acc<br>Thr        | aga<br>Arg        | atg<br>Met<br>310 | gaa<br>Glu        | ccc<br>Pro        | ttt<br>Phe        | cac<br>His        | ttc<br>Phe<br>315 | aaa<br>Lys        | aac<br>Asn        | tca<br>Ser        | gtt<br>Val        | ata<br>Ile<br>320 | 1020 |
| aaa<br>Lys        | gtg<br>Val        | ccc<br>Pro        | atg<br>Met        | atg<br>Met<br>325 | aat<br>Asn        | agc<br>Ser        | aag<br>Lys        | aag<br>Lys        | tac<br>Tyr<br>330 | cct<br>Pro        | gtg<br>Val        | gcc<br>Ala        | cat<br>His        | ttc<br>Phe<br>335 | att<br>Ile        | 1068 |
| gac<br>Asp        | caa<br>Gln        | act<br>Thr        | ttg<br>Leu<br>340 | aaa<br>Lys        | gcc<br>Ala        | aag<br>Lys        | gtg<br>Val        | ggg<br>Gly<br>345 | cag<br>Gln        | ctg<br>Leu        | cag<br>Gln        | ctc<br>Leu        | tcc<br>Ser<br>350 | cac<br>His        | aat<br>Asn        | 1116 |
| ctg<br>Leu        | agt<br>Ser        | ttg<br>Leu<br>355 | gtg<br>Val        | atc<br>Ile        | ctg<br>Leu        | gta<br>Val        | ccc<br>Pro<br>360 | cag<br>Gln        | aac<br>Asn        | ctg<br>Leu        | aaa<br>Lys        | cat<br>His<br>365 | cgt<br>Arg        | ctt<br>Leu        | gaa<br>Glu        | 1164 |
| gac<br>Asp        | atg<br>Met<br>370 | gaa<br>Glu        | cag<br>Gln        | gct<br>Ala        | ctc<br>Leu        | agc<br>Ser<br>375 | cct<br>Pro        | tct<br>Ser        | gtt<br>Val        | ttc<br>Phe        | aag<br>Lys<br>380 | gcc<br>Ala        | atc<br>Ile        | atg<br>Met        | gag<br>Glu        | 1212 |
| aaa<br>Lys<br>385 | ctg<br>Leu        | gag<br>Glu        | atg<br>Met        | tcc<br>Ser        | aag<br>Lys<br>390 | ttc<br>Phe        | cag<br>Gln        | ccc<br>Pro        | act<br>Thr        | ctc<br>Leu<br>395 | cta<br>Leu        | aca<br>Thr        | cta<br>Leu        | ccc<br>Pro        | cgc<br>Arg<br>400 | 1260 |
| atc<br>Ile        | aaa<br>Lys        | gtg<br>Val        | acg<br>Thr        | acc<br>Thr<br>405 | agt<br>Ser        | cag<br>Gln        | gat<br>Asp        | atg<br>Met        | ctc<br>Leu<br>410 | tca<br>Ser        | atc<br>Ile        | atg<br>Met        | gag<br>Glu        | aaa<br>Lys<br>415 | ttg<br>Leu        | 1308 |
| gaa<br>Glu        | ttc<br>Phe        | ttc<br>Phe        | gat<br>Asp<br>420 | ttt<br>Phe        | tct<br>Ser        | tat<br>Tyr        | gac<br>Asp        | ctt<br>Leu<br>425 | aac<br>Asn        | ctg<br>Leu        | tgt<br>Cys        | Gly<br>aaa        | ctg<br>Leu<br>430 | aca<br>Thr        | gag<br>Glu        | 1356 |
| gac<br>Asp        | cca<br>Pro        | gat<br>Asp<br>435 | ctt<br>Leu        | cag<br>Gln        | gtt<br>Val        | tct<br>Ser        | gcg<br>Ala<br>440 | atg<br>Met        | cag<br>Gln        | cac<br>His        | cag<br>Gln        | aca<br>Thr<br>445 | gtg<br>Val        | ctg<br>Leu        | gaa<br>Glu        | 1404 |
| ctg<br>Leu        | aca<br>Thr<br>450 | gag<br>Glu        | act<br>Thr        | ggg<br>Gly        | gtg<br>Val        | gag<br>Glu<br>455 | gcg<br>Ala        | gct<br>Ala        | gca<br>Ala        | gcc<br>Ala        | tcc<br>Ser<br>460 | gcc<br>Ala        | atc<br>Ile        | tct<br>Ser        | gtg<br>Val        | 1452 |

| gcc cgc acc ctg ctg gtc ttt gaa gtg cag cag ccc ttc ctc ttc gtg<br>Ala Arg Thr Leu Leu Val Phe Glu Val Gln Gln Pro Phe Leu Phe Val<br>465 470 475 480 | 1500 |
|---|------|
| ctc tgg gac cag cag cac aag ttc cct gtc ttc atg ggg cga gta tat<br>Leu Trp Asp Gln Gln His Lys Phe Pro Val Phe Met Gly Arg Val Tyr<br>485 490 495     | 1548 |
| gac ccc agg gcc tgagacctgc aggatcaggt tagggcgagc gctacctctc<br>Asp Pro Arg Ala<br>500   | 1600 |
| cagecteage teteagttge agecetgetg etgeetgeet ggaettgeee etgeeacete   | 1660 |
| ctgcctcagg tgtccgctat ccaccaaaag ggctcctgag ggtctgggca agggacctgc   | 1720 |
| ttctattagc ccttctccat ggccctgcca tgctctccaa accacttttt gcagctttct   | 1780 |
| ctagttcaag ttcaccagac tctataaata aaacctgaca gaccat  | 1826 |

<210> 24 <211> 500 <212> PRT <213> homo sapiens

<400> 24

Met Ala Ser Arg Leu Thr Leu Leu Thr Leu Leu Leu Leu Leu Leu Ala 1 5 10 15

Gly Asp Arg Ala Ser Ser Asn Pro Asn Ala Thr Ser Ser Ser Gln 20 25 30

Asp Pro Glu Ser Leu Gln Asp Arg Gly Glu Gly Lys Val Ala Thr Thr 35 40 45

Val Ile Ser Lys Met Leu Phe Val Glu Pro Ile Leu Glu Val Ser Ser 50 55 60

Leu Pro Thr Thr Asn Ser Thr Thr Asn Ser Ala Thr Lys Ile Thr Ala 65 70 75 80

Asn Thr Thr Asp Glu Pro Thr Thr Gln Pro Thr Thr Glu Pro Thr Thr 85 90 95

Gln Pro Thr Ile Gln Pro Thr Gln Pro Thr Thr Gln Leu Pro Thr Asp 100 105 110

Ser Pro Thr Gln Pro Thr Thr Gly Ser Phe Cys Pro Gly Pro Val Thr

115 120 125

Leu Cys Ser Asp Leu Glu Ser His Ser Thr Glu Ala Val Leu Gly Asp 130 Ala Leu Val Asp Phe Ser Leu Lys Leu Tyr His Ala Phe Ser Ala Met 150 155 Lys Lys Val Glu Thr Asn Met Ala Phe Ser Pro Phe Ser Ile Ala Ser 170 Leu Leu Thr Gln Val Leu Leu Gly Ala Gly Gln Asn Thr Lys Thr Asn . 185 Leu Glu Ser Ile Leu Ser Tyr Pro Lys Asp Phe Thr Cys Val His Gln 200 Ala Leu Lys Gly Phe Thr Thr Lys Gly Val Thr Ser Val Ser Gln Ile 215 Phe His Ser Pro Asp Leu Ala Ile Arg Asp Thr Phe Val Asn Ala Ser 230 235 Arg Thr Leu Tyr Ser Ser Ser Pro Arg Val Leu Ser Asn Asn Ser Asp 245 250 Ala Asn Leu Glu Leu Ile Asn Thr Trp Val Ala Lys Asn Thr Asn Asn 265 Lys Ile Ser Arg Leu Leu Asp Ser Leu Pro Ser Asp Thr Arg Leu Val 280 Leu Leu Asn Ala Ile Tyr Leu Ser Ala Lys Trp Lys Thr Thr Phe Asp 295 Pro Lys Lys Thr Arg Met Glu Pro Phe His Phe Lys Asn Ser Val Ile 310 315 Lys Val Pro Met Met Asn Ser Lys Lys Tyr Pro Val Ala His Phe Ile 325 330

Asp Gln Thr Leu Lys Ala Lys Val Gly Gln Leu Gln Leu Ser His Asn

345

340

| ьeu                          | ser        | 355                   | vai        | 11e             | Leu        | Val        | 9ro<br>360 | GIn        | Asn              | Leu        | Lys        | His<br>365 | Arg        | Leu              | Glu        |     |
|------------------------------|------------|-----------------------|------------|-----------------|------------|------------|------------|------------|------------------|------------|------------|------------|------------|------------------|------------|-----|
| Asp                          | Met<br>370 | Glu                   | Gln        | Ala             | Leu        | Ser<br>375 | Pro        | Ser        | Val              | Phe        | Lys<br>380 | Ala        | Ile        | Met              | Glu        |     |
| Lys<br>385                   | Leu        | Glu                   | Met        | Ser             | Lys<br>390 | Phe        | Gln        | Pro        | Thr              | Leu<br>395 | Leu        | Thr        | Leu        | Pro              | Arg<br>400 |     |
| Ile                          | Lys        | Val                   | Thr        | Thr<br>405      | Ser        | Gln        | Asp        | Met        | Leu<br>410       | Ser        | Ile        | Met        | Glu        | Lys<br>415       | Leu        |     |
| Glu                          | Phe        | Phe                   | Asp<br>420 | Phe             | Ser        | Tyr        | Asp        | Leu<br>425 | Asn              | Leu        | Cys        | Gly        | Leu<br>430 | Thr              | Glu        |     |
| Asp                          | Pro        | Asp<br>435            | Leu        | Gln             | Val        | Ser        | Ala<br>440 | Met        | Gln              | His        | Gln        | Thr<br>445 | Val        | Leu              | Glu        |     |
| Leu                          | Thr<br>450 | Glu                   | Thr        | Gly             | Val        | Glu<br>455 | Ala        | Ala        | Ala              | Ala        | Ser<br>460 | Ala        | Ile        | Ser              | Val        |     |
| Ala<br>465                   | Arg        | Thr                   | Leu        | Leu             | Val<br>470 | Phe        | Glu        | Val        | Gln              | Gln<br>475 | Pro        | Phe        | Leu        | Phe              | Val<br>480 |     |
| Leu                          | Trp        | Asp                   | Gln        | Gln<br>485      | His        | Lys        | Phe        | Pro        | Val<br>490       | Phe        | Met        | Gly        | Arg        | Val<br>495       | Tyr        |     |
| Asp                          | Pro        | Arg                   | Ala<br>500 |                 |            |            |            |            |                  |            |            |            |            |                  |            |     |
| <210<br><211<br><212<br><213 | > 1<br>> D | 5<br>826<br>NA<br>omo | sapi       | ens             |            |            |            |            |                  |            |            |            |            |                  |            |     |
| <220<br><221<br><222         | > C        | DS<br>61).            | .(15       | 60)             |            |            |            |            |                  |            |            |            |            |                  |            |     |
| <400<br>agtc                 |            |                       | gagc       | tgcc            | t gg       | tgac       | caga       | agt        | ttgg             | agt        | ccgc       | tgac       | gt c       | gccg             | cccag      | 60  |
| atg<br>Met<br>1              | gcc<br>Ala | tcc<br>Ser .          | Arg        | ctg<br>Leu<br>5 | acc<br>Thr | ctg<br>Leu | ctg<br>Leu | Thr        | ctc<br>Leu<br>10 | ctg<br>Leu | ctg<br>Leu | ctg<br>Leu | ctg<br>Leu | ctg<br>Leu<br>15 | gct<br>Ala | 108 |

| GJÀ<br>aaa        | gat<br>Asp        | aga<br>Arg        | gcc<br>Ala<br>20  | tcc<br>Ser        | tca<br>Ser        | aat<br>Asn        | cca<br>Pro        | aat<br>Asn<br>25  | gct<br>Ala        | acc<br>Thr        | agc<br>Ser        | tcc<br>Ser        | agc<br>Ser<br>30  | tcc<br>Ser             | cag<br>Gln        | 156 |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------------------------|-------------------|-----|
| gat<br>Asp        | cca<br>Pro        | gag<br>Glu<br>35  | agt<br>Ser        | ttg<br>Leu        | caa<br>Gln        | gac<br>Asp        | aga<br>Arg<br>40  | ggc<br>Gly        | gaa<br>Glu        | Gly               | aag<br>Lys        | gtc<br>Val<br>45  | gca<br>Ala        | aca<br>Thr             | aca<br>Thr        | 204 |
| gtt<br>Val        | atc<br>Ile<br>50  | tcc<br>Ser        | aag<br>Lys        | atg<br>Met        | cta<br>Leu        | ttc<br>Phe<br>55  | gct<br>Ala        | gaa<br>Glu        | ccc<br>Pro        | atc<br>Ile        | ctg<br>Leu<br>60  | gag<br>Glu        | gtt<br>Val        | tcc<br>Ser             | agc<br>Ser        | 252 |
| ttg<br>Leu<br>65  | ccg<br>Pro        | aca<br>Thr        | acc<br>Thr        | aac<br>Asn        | tca<br>Ser<br>70  | aca<br>Thr        | acc<br>Thr        | aat<br>Asn        | tca<br>Ser        | gcc<br>Ala<br>75  | acc<br>Thr        | aaa<br>Lys        | ata<br>Ile        | aca<br>Thr             | gct<br>Ala<br>80  | 300 |
| aat<br>Asn        | acc<br>Thr        | act<br>Thr        | gat<br>Asp        | gaa<br>Glu<br>85  | ccc<br>Pro        | acc<br>Thr        | aca<br>Thr        | caa<br>Gln        | ccc<br>Pro<br>90  | acc<br>Thr        | aca<br>Thr        | gag<br>Glu        | ccc<br>Pro        | acc<br>Thr<br>95       | acc<br>Thr        | 348 |
| caa<br>Gln        | ccc<br>Pro        | acc<br>Thr        | atc<br>Ile<br>100 | caa<br>Gln        | ccc<br>Pro        | acc<br>Thr        | caa<br>Gln        | cca<br>Pro<br>105 | act<br>Thr        | acc<br>Thr        | cag<br>Gln        | ctc<br>Leu        | cca<br>Pro<br>110 | aca<br>Thr             | gat<br>Asp        | 396 |
|                   |                   |                   |                   |                   | act<br>Thr        |                   |                   |                   |                   |                   |                   |                   |                   |                        |                   | 444 |
| ctc<br>Leu        | tgc<br>Cys<br>130 | tct<br>Ser        | gac<br>Asp        | ttg<br>Leu        | gag<br>Glu        | agt<br>Ser<br>135 | cat<br>His        | tca<br>Ser        | aca<br>Thr        | gag<br>Glu        | gcc<br>Ala<br>140 | gtg<br>Val        | ttg<br>Leu        | Gl <sup>A</sup><br>aaa | gat<br>Asp        | 492 |
| gct<br>Ala<br>145 | ttg<br>Leu        | gta<br>Val        | gat<br>Asp        | ttc<br>Phe        | tcc<br>Ser<br>150 | ctg<br>Leu        | aag<br>Lys        | ctc<br>Leu        | tac<br>Tyr        | cac<br>His<br>155 | gcc<br>Ala        | ttc<br>Phe        | tca<br>Ser        | gca<br>Ala             | atg<br>Met<br>160 | 540 |
| aag<br>Lys        | aag<br>Lys        | gtg<br>Val        | gag<br>Glu        | acc<br>Thr<br>165 | aac<br>Asn        | atg<br>Met        | gcc<br>Ala        | ttt<br>Phe        | tcc<br>Ser<br>170 | cca<br>Pro        | ttc<br>Phe        | agc<br>Ser        | atc<br>Ile        | gcc<br>Ala<br>175      | agc<br>Ser        | 588 |
| ctc<br>Leu        | ctt<br>Leu        | acc<br>Thr        | cag<br>Gln<br>180 | gtc<br>Val        | ctg<br>Leu        | ctc<br>Leu        | Gly<br>aga        | gct<br>Ala<br>185 | Gly<br>aaa        | cag<br>Gln        | aac<br>Asn        | acc<br>Thr        | aaa<br>Lys<br>190 | aca<br>Thr             | aac<br>Asn        | 636 |
| ctg<br>Leu        | gag<br>Glu        | agc<br>Ser<br>195 | atc<br>Ile        | ctc<br>Leu        | tct<br>Ser        | tac<br>Tyr        | ccc<br>Pro<br>200 | aag<br>Lys        | gac<br>Asp        | ttc<br>Phe        | acc<br>Thr        | tgt<br>Cys<br>205 | gtc<br>Val        | cac<br>His             | cag<br>Gln        | 684 |
| gcc<br>Ala        | ctg<br>Leu<br>210 | aag<br>Lys        | ggc<br>Gly        | ttc<br>Phe        | acg<br>Thr        | acc<br>Thr<br>215 | aaa<br>Lys        | ggt<br>Gly        | gtc<br>Val        | acc<br>Thr        | tca<br>Ser<br>220 | gtc<br>Val        | tct<br>Ser        | cag<br>Gln             | atc<br>Ile        | 732 |
| ttc<br>Phe<br>225 | cac<br>His        | agc<br>Ser        | cca<br>Pro        | gac<br>Asp        | ctg<br>Leu<br>230 | gcc<br>Ala        | ata<br>Ile        | agg<br>Arg        | gac<br>Asp        | acc<br>Thr<br>235 | ttt<br>Phe        | gtg<br>Val        | aat<br>Asn        | gcc<br>Ala             | tct<br>Ser<br>240 | 780 |

| cgg<br>Arg        | acc<br>Thr        | ctg<br>Leu        | tac<br>Tyr        | agc<br>Ser<br>245 | Ser               | agc<br>Ser        | ccc<br>Pro        | aga<br>Arg        | gtc<br>Val<br>250 | cta<br>Leu        | agc<br>Ser        | aac<br>Asn        | aac<br>Asn        | agt<br>Ser<br>255 | Asp               | 828  |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| gcc<br>Ala        | aac<br>Asn        | ttg<br>Leu        | gag<br>Glu<br>260 | ctc<br>Leu        | atc<br>Ile        | aac<br>Asn        | acc<br>Thr        | tgg<br>Trp<br>265 | gtg<br>Val        | gcc<br>Ala        | aag<br>Lys        | aac<br>Asn        | acc<br>Thr<br>270 | aac<br>Asn        | aac<br>Asn        | 876  |
| aag<br>Lys        | atc<br>Ile        | agc<br>Ser<br>275 | cgg<br>Arg        | ctg<br>Leu        | cta<br>Leu        | gac<br>Asp        | agt<br>Ser<br>280 | ctg<br>Leu        | ccc<br>Pro        | tcc<br>Ser        | gat<br>Asp        | acc<br>Thr<br>285 | cgc<br>Arg        | ctt<br>Leu        | gtc<br>Val        | 924  |
| ctc<br>Leu        | ctc<br>Leu<br>290 | aat<br>Asn        | gct<br>Ala        | atc<br>Ile        | tac<br>Tyr        | ctg<br>Leu<br>295 | agt<br>Ser        | gcc<br>Ala        | aag<br>Lys        | tgg<br>Trp        | aag<br>Lys<br>300 | aca<br>Thr        | aca<br>Thr        | ttt<br>Phe        | gat<br>Asp        | 972  |
| ccc<br>Pro<br>305 | aag<br>Lys        | aaa<br>Lys        | acc<br>Thr        | aga<br>Arg        | atg<br>Met<br>310 | gaa<br>Glu        | ccc<br>Pro        | ttt<br>Phe        | cac<br>His        | ttc<br>Phe<br>315 | aaa<br>Lys        | aac<br>Asn        | tca<br>Ser        | gtt<br>Val        | ata<br>Ile<br>320 | 1020 |
| aaa<br>Lys        | gtg<br>Val        | ccc<br>Pro        | atg<br>Met        | atg<br>Met<br>325 | aat<br>Asn        | agc<br>Ser        | aag<br>Lys        | aag<br>Lys        | tac<br>Tyr<br>330 | cct<br>Pro        | gtg<br>Val        | gcc<br>Ala        | cat<br>His        | ttc<br>Phe<br>335 | att<br>Ile        | 1068 |
| gac<br>Asp        | caa<br>Gln        | act<br>Thr        | ttg<br>Leu<br>340 | aaa<br>Lys        | gcc<br>Ala        | aag<br>Lys        | gtg<br>Val        | ggg<br>Gly<br>345 | cag<br>Gln        | ctg<br>Leu        | cag<br>Gln        | ctc<br>Leu        | tcc<br>Ser<br>350 | cac<br>His        | aat<br>Asn        | 1116 |
| ctg<br>Leu        | agt<br>Ser        | ttg<br>Leu<br>355 | gtg<br>Val        | atc<br>Ile        | ctg<br>Leu        | gta<br>Val        | ccc<br>Pro<br>360 | cag<br>Gln        | aac<br>Asn        | ctg<br>Leu        | aaa<br>Lys        | cat<br>His<br>365 | cgt<br>Arg        | ctt<br>Leu        | gaa<br>Glu        | 1164 |
| gac<br>Asp        | atg<br>Met<br>370 | gaạ<br>Glu        | cag<br>Gln        | gct<br>Ala        | ctc<br>Leu        | agc<br>Ser<br>375 | cct<br>Pro        | tct<br>Ser        | gtt<br>Val        | ttc<br>Phe        | aag<br>Lys<br>380 | gcc<br>Ala        | atc<br>Ile        | atg<br>Met        | gag<br>Glu        | 1212 |
| aaa<br>Lys<br>385 | ctg<br>Leu        | gag<br>Glu        | atg<br>Met        | tcc<br>Ser        | aag<br>Lys<br>390 | ttc<br>Phe        | cag<br>Gln        | ccc<br>Pro        | act<br>Thr        | ctc<br>Leu<br>395 | cta<br>Leu        | aca<br>Thr        | cta<br>Leu        | ccc<br>Pro        | cgc<br>Arg<br>400 | 1260 |
| atc<br>Ile        | aaa<br>Lys        | gtg<br>Val        | acg<br>Thr        | acc<br>Thr<br>405 | agc<br>Ser        | cag<br>Gln        | gat<br>Asp        | atg<br>Met        | ctc<br>Leu<br>410 | tca<br>Ser        | atc<br>Ile        | atg<br>Met        | gag<br>Glu        | aaa<br>Lys<br>415 | ttg<br>Leu        | 1308 |
| gaa<br>Glu        | ttc<br>Phe        | ttc<br>Phe        | gat<br>Asp<br>420 | ttt<br>Phe        | tct<br>Ser        | tat<br>Tyr        | gac<br>Asp        | ctt<br>Leu<br>425 | aac<br>Asn        | ctg<br>Leu        | tgt<br>Cys        | Gly<br>ggg        | ctg<br>Leu<br>430 | aca<br>Thr        | gag<br>Glu        | 1356 |
| gac<br>Asp        | cca<br>Pro        | gat<br>Asp<br>435 | ctt<br>Leu        | cag<br>Gln        | gtt<br>Val        | tct<br>Ser        | gcg<br>Ala<br>440 | atg<br>Met        | cag<br>Gln        | cac<br>His        | cag<br>Gln        | aca<br>Thr<br>445 | gtg<br>Val        | ctg<br>Leu        | gaa<br>Glu        | 1404 |
| ctg<br>Leu        | aca<br>Thr<br>450 | gag<br>Glu        | act<br>Thr        | gly<br>ggg        | gtg<br>Val        | gag<br>Glu<br>455 | gcg<br>Ala        | gct<br>Ala        | gca<br>Ala        | gcc<br>Ala        | tcc<br>Ser<br>460 | gcc<br>Ala        | atc<br>Ile        | tct<br>Ser        | gtg<br>Val        | 1452 |
| gcc               | cgc               | acc               | ctg               | ctg               | gtc               | ttt               | gaa               | gtg               | cag               | cag               | ccc               | ttc               | ctc               | ttc               | gtg               | 1500 |

20

| Ala Arg Thr Leu Leu Val Phe Glu Val Gln Gln Pro Phe Leu Phe Val<br>465 470 475 480  |      |
|---|------|
| ctc tgg gac cag cac aag ttc cct gtc ttc atg ggg cga gta tat<br>Leu Trp Asp Gln Gln His Lys Phe Pro Val Phe Met Gly Arg Val Tyr<br>485 490 495 | 1548 |
| gac ccc agg gcc tgagacctgc aggatcaggt tagggcgagc gctacctctc<br>Asp Pro Arg Ala<br>500   | 1600 |
| cagecteage teteagttge agecetgetg etgeetgeet ggaettgeee etgeeacete   | 1660 |
|   | 1000 |
| ctgcctcagg tgtccgctat ccaccaaaag ggctcctgag ggtctgggca agggacctgc   | 1720 |
| ttctattagc ccttctccat ggccctgcca tgctctccaa accacttttt gcagctttct   | 1780 |
| ctagttcaag ttcaccagac tctataaata aaacctgaca gaccat  | 1826 |
| <210> 26<br><211> 500<br><212> PRT<br><213> homo sapiens  |      |
| <400> 26  |      |
| Met Ala Ser Arg Leu Thr Leu Leu Thr Leu Leu Leu Leu Leu Leu Ala 1 5 10 15   |      |
| Gly Asp Arg Ala Ser Ser Asn Pro Asn Ala Thr Ser Ser Ser Gln   |      |

Asp Pro Glu Ser Leu Gln Asp Arg Gly Glu Gly Lys Val Ala Thr Thr 35 40 45

Val Ile Ser Lys Met Leu Phe Ala Glu Pro Ile Leu Glu Val Ser Ser 50 55 60

Leu Pro Thr Thr Asn Ser Thr Thr Asn Ser Ala Thr Lys Ile Thr Ala 65 70 75 80

Asn Thr Thr Asp Glu Pro Thr Thr Gln Pro Thr Thr Glu Pro Thr Thr 85 90 95

Gln Pro Thr Ile Gln Pro Thr Gln Pro Thr Thr Gln Leu Pro Thr Asp 100 105 110

Ser Pro Thr Gln Pro Thr Thr Gly Ser Phe Cys Pro Gly Pro Val Thr 115 120 125

Leu Cys Ser Asp Leu Glu Ser His Ser Thr Glu Ala Val Leu Gly Asp 130 135 140

Ala Leu Val Asp Phe Ser Leu Lys Leu Tyr His Ala Phe Ser Ala Met 145 150 155 160

Lys Lys Val Glu Thr Asn Met Ala Phe Ser Pro Phe Ser Ile Ala Ser 165 170 175

Leu Leu Thr Gln Val Leu Leu Gly Ala Gly Gln Asn Thr Lys Thr Asn 180 185 190

Leu Glu Ser Ile Leu Ser Tyr Pro Lys Asp Phe Thr Cys Val His Gln
195 200 205

Ala Leu Lys Gly Phe Thr Thr Lys Gly Val Thr Ser Val Ser Gln Ile 210 215 220

Phe His Ser Pro Asp Leu Ala Ile Arg Asp Thr Phe Val Asn Ala Ser 225 230 235 240

Ala Asn Leu Glu Leu Ile Asn Thr Trp Val Ala Lys Asn Thr Asn Asn 260 265 270

Lys Ile Ser Arg Leu Leu Asp Ser Leu Pro Ser Asp Thr Arg Leu Val 275 280 285

Leu Leu Asn Ala Ile Tyr Leu Ser Ala Lys Trp Lys Thr Thr Phe Asp 290 295 300

Pro Lys Lys Thr Arg Met Glu Pro Phe His Phe Lys Asn Ser Val Ile 305 310 315 320

Lys Val Pro Met Met Asn Ser Lys Lys Tyr Pro Val Ala His Phe Ile 325 330 335

Asp Gln Thr Leu Lys Ala Lys Val Gly Gln Leu Gln Leu Ser His Asn 340 345 350

| Let                      | ı Sei      | r Leu<br>355              | Val        | Ile             | Leu        | Val        | Pro<br>360 | Gln        | Asn        | Leu        | Lys        | His<br>365 | Arg        | Leu        | Glu        |     |
|--------------------------|------------|---------------------------|------------|-----------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-----|
| Asp                      | Met<br>370 | t Glu                     | Gln        | Ala             | Leu        | Ser<br>375 |            | Ser        | Val        | Phe        | Lys<br>380 | Ala        | Ile        | Met        | Glu        |     |
| Lys<br>385               | Let        | ı Glu                     | Met        | Ser             | Lys<br>390 | Phe        | Gln        | Pro        | Thr        | Leu<br>395 | Leu        | Thr        | Leu        | Pro        | Arg<br>400 |     |
| Ile                      | . Lys      | s Val                     | Thr        | Thr<br>405      |            | Gln        | Asp        | Met        | Leu<br>410 | Ser        | Ile        | Met        | Glu        | Lys<br>415 | Leu        |     |
| Glu                      | Phe        | e Phe                     | Asp<br>420 |                 | Ser        | Tyr        | Asp        | Leu<br>425 | Asn        | Leu        | Cys        | Gly        | Leu<br>430 | Thr        | Glu        |     |
| Asp                      | Pro        | Asp<br>435                | Leu        | Gln             | Val        | Ser        | Ala<br>440 | Met        | Gln        | His        | Gln        | Thr<br>445 | Val        | Leu        | Glu        |     |
| Leu                      | Thr<br>450 | Glu                       | Thr        | Gly             | Val        | Glu<br>455 | Ala        | Ala        | Ala        | Ala        | Ser<br>460 | Ala        | Ile        | Ser        | Val        |     |
| Ala<br>465               | Arg        | Thr                       | Leu        | Leu             | Val<br>470 | Phe        | Glu        | Val        | Gln        | Gln<br>475 | Pro        | Phe        | Leu        | Phe        | Val<br>480 |     |
| Leu                      | Trp        | Asp                       | Gln        | Gln<br>485      | His        | Lys        | Phe        | Pro        | Val<br>490 | Phe        | Met        | Gly        | Arg        | Val<br>495 | Tyr        |     |
| Asp                      | Pro        | Arg                       | Ala<br>500 |                 |            |            |            |            |            |            |            |            |            |            |            |     |
| <21<br><21<br><21<br><21 | 1><br>2>   | 27<br>1826<br>DNA<br>homo | sap:       | iens            |            |            |            |            |            |            |            |            |            |            |            |     |
| <22<br><22<br><22        | 1>         | CDS<br>(61).              | (15        | 560)            |            |            |            |            |            |            |            |            |            |            |            |     |
| <40<br>agt               |            | 27<br>act g               | ggago      | ctgco           | et gg      | ıtgac      | caga       | . agt      | ttgg       | agt        | ccgc       | tgac       | gt c       | gccg       | cccag      | 60  |
| atg<br>Met<br>1          | gcc<br>Ala | tcc<br>Ser                | agg<br>Arg | ctg<br>Leu<br>5 | acc<br>Thr | ctg<br>Leu | ctg<br>Leu | Thr        | ctc<br>Leu | ctg<br>Leu | ctg<br>Leu | ctg<br>Leu | ctg<br>Leu | ctg<br>Leu | gct<br>Ala | 108 |

| Gly<br>aaa        | gat<br>Asp        | aga<br>Arg        | gcc<br>Ala<br>20  | tcc<br>Ser        | tca<br>Ser        | aat<br>Asn        | cca<br>Pro        | aat<br>Asn<br>25  | gct<br>Ala             | acc<br>Thr        | agc<br>Ser        | tcc<br>Ser        | agc<br>Ser<br>30  | tcc<br>Ser        | cag<br>Gln        | 156 |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-----|
| gat<br>Asp        | cca<br>Pro        | gag<br>Glu<br>35  | agt<br>Ser        | ttg<br>Leu        | caa<br>Gln        | gac<br>Asp        | aga<br>Arg<br>40  | ggc<br>Gly        | gaa<br>Glu             | Gly               | aag<br>Lys        | gtc<br>Val<br>45  | gca<br>Ala        | aca<br>Thr        | aca<br>Thr        | 204 |
| gtt<br>Val        | atc<br>Ile<br>50  | tcc<br>Ser        | aag<br>Lys        | atg<br>Met        | cta<br>Leu        | ttc<br>Phe<br>55  | gtt<br>Val        | gaa<br>Glu        | ccc<br>Pro             | atc<br>Ile        | ctg<br>Leu<br>60  | gag<br>Glu        | gtt<br>Val        | tcc<br>Ser        | agc<br>Ser        | 252 |
| ttg<br>Leu<br>65  | ccg<br>Pro        | aca<br>Thr        | acc<br>Thr        | aac<br>Asn        | tca<br>Ser<br>70  | aca<br>Thr        | acc<br>Thr        | aat<br>Asn        | tca<br>Ser             | gcc<br>Ala<br>75  | acc<br>Thr        | aaa<br>Lys        | ata<br>Ile        | aca<br>Thr        | gct<br>Ala<br>80  | 300 |
| aat<br>Asn        | acc<br>Thr        | act<br>Thr        | gat<br>Asp        | gaa<br>Glu<br>85  | ccc<br>Pro        | acc<br>Thr        | aca<br>Thr        | caa<br>Gln        | ccc<br>Pro<br>90       | acc<br>Thr        | aca<br>Thr        | gag<br>Glu        | ccc<br>Pro        | acc<br>Thr<br>95  | acc<br>Thr        | 348 |
| caa<br>Gln        | ccc<br>Pro        | acc<br>Thr        | atc<br>Ile<br>100 | caa<br>Gln        | ccc<br>Pro        | acc<br>Thr        | caa<br>Gln        | cca<br>Pro<br>105 | act<br>Thr             | acc<br>Thr        | cag<br>Gln        | ctc<br>Leu        | cca<br>Pro<br>110 | aca<br>Thr        | gat<br>Asp        | 396 |
| tct<br>Ser        | cct<br>Pro        | acc<br>Thr<br>115 | cag<br>Gln        | ccc<br>Pro        | act<br>Thr        | act<br>Thr        | ggg<br>Gly<br>120 | tcc<br>Ser        | ttc<br>Phe             | tgc<br>Cys        | cca<br>Pro        | gga<br>Gly<br>125 | cct<br>Pro        | gtt<br>Val        | act<br>Thr        | 444 |
| ctc<br>Leu        | tgc<br>Cys<br>130 | tct<br>Ser        | gac<br>Asp        | ttg<br>Leu        | gag<br>Glu        | agt<br>Ser<br>135 | cat<br>His        | tca<br>Ser        | aca<br>Thr             | gag<br>Glu        | gcc<br>Ala<br>140 | gtg<br>Val        | ttg<br>Leu        | Gly<br>ggg        | gat<br>Asp        | 492 |
| gct<br>Ala<br>145 | ttg<br>Leu        | gta<br>Val        | gat<br>Asp        | ttc<br>Phe        | tcc<br>Ser<br>150 | ctg<br>Leu        | aag<br>Lys        | ctc<br>Leu        | tac<br>Tyr             | cac<br>His<br>155 | gcc<br>Ala        | ttc<br>Phe        | tca<br>Ser        | gga<br>Gly        | atg<br>Met<br>160 | 540 |
| aag<br>Lys        | aag<br>Lys        | gtg<br>Val        | gag<br>Glu        | acc<br>Thr<br>165 | aac<br>Asn        | atg<br>Met        | gcc<br>Ala        | ttt<br>Phe        | tcc<br>Ser<br>170      | cca<br>Pro        | ttc<br>Phe        | agc<br>Ser        | atc<br>Ile        | gcc<br>Ala<br>175 | agc<br>Ser        | 588 |
| ctc<br>Leu        | ctt<br>Leu        | acc<br>Thr        | cag<br>Gln<br>180 | gtc<br>Val        | ctg<br>Leu        | ctc<br>Leu        | ggg<br>Gly        | gct<br>Ala<br>185 | Gl <sup>A</sup><br>aaa | cag<br>Gln        | aac<br>Asn        | acc<br>Thr        | aaa<br>Lys<br>190 | aca<br>Thr        | aac<br>Asn        | 636 |
| ctg<br>Leu        | gag<br>Glu        | agc<br>Ser<br>195 | atc<br>Ile        | ctc<br>Leu        | tct<br>Ser        | tac<br>Tyr        | ccc<br>Pro<br>200 | aag<br>Lys        | gac<br>Asp             | ttc<br>Phe        | acc<br>Thr        | tgt<br>Cys<br>205 | gtc<br>Val        | cac<br>His        | cag<br>Gln        | 684 |
| gcc<br>Ala        | ctg<br>Leu<br>210 | aag<br>Lys        | ggc<br>Gly        | ttc<br>Phe        | acg<br>Thr        | acc<br>Thr<br>215 | aaa<br>Lys        | ggt<br>Gly        | gtc<br>Val             | acc<br>Thr        | tca<br>Ser<br>220 | gtc<br>Val        | tct<br>Ser        | cag<br>Gln        | atc<br>Ile        | 732 |
| ttc<br>Phe<br>225 | cac<br>His        | agc<br>Ser        | cca<br>Pro        | gac<br>Asp        | ctg<br>Leu<br>230 | gcc<br>Ala        | ata<br>Ile        | agg<br>Arg        | Asp                    | acc<br>Thr<br>235 | ttt<br>Phe        | gtg<br>Val        | aat<br>Asn        | gcc<br>Ala        | tct<br>Ser<br>240 | 780 |
| cgg               | acc               | ctg               | tac               | agc               | agc               | agc               | ccc               | aga               | gtc                    | cta               | agc               | aac               | aac               | agt               | gac               | 828 |

| Arg               | J Thr             | . Lei             | 1 Ту1                 | Sei<br>245          | Ser               | Ser               | Pro               | Arg               | val<br>250        |                   | ı Ser             | Asn               | a Asn             | Ser<br>255        | Asp               |      |
|-------------------|-------------------|-------------------|-----------------------|---------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| gcc<br>Ala        | aac<br>Asr        | ttg<br>Lei        | g gag<br>1 Glu<br>260 | ı Let               | ato<br>Ile        | aac<br>Asn        | acc<br>Thr        | tgg<br>Trp<br>265 | Val               | gcc<br>Ala        | aag<br>Lys        | aac<br>Asn        | acc<br>Thr<br>270 | Asr               | aac<br>Asn        | 876  |
| aag<br>Lys        | atc<br>:Ile       | ago<br>Ser<br>275 | Arg                   | ıct <u>ç</u><br>Leu | g cta<br>Leu      | gac<br>Asp        | agt<br>Ser<br>280 | Leu               | ccc<br>Pro        | tcc<br>Ser        | gat<br>Asp        | acc<br>Thr<br>285 | Arg               | ctt<br>Leu        | gtc<br>Val        | 924  |
| ctc<br>Leu        | Leu<br>290        | Asn               | gct<br>Ala            | ato<br>Ile          | tac<br>Tyr        | ctg<br>Leu<br>295 | agt<br>Ser        | gcc<br>Ala        | aag<br>Lys        | tgg<br>Trp        | aag<br>Lys<br>300 | Thr               | aca<br>Thr        | ttt<br>Phe        | gat<br>Asp        | 972  |
| ccc<br>Pro<br>305 | Lys               | aaa<br>Lys        | acc<br>Thr            | aga<br>Arg          | atg<br>Met<br>310 | gaa<br>Glu        | ccc<br>Pro        | ttt<br>Phe        | cac<br>His        | ttc<br>Phe<br>315 | aaa<br>Lys        | aac<br>Asn        | tca<br>Ser        | gtt<br>Val        | ata<br>Ile<br>320 | 1020 |
| aaa<br>Lys        | gtg<br>Val        | ccc<br>Pro        | atg<br>Met            | atg<br>Met<br>325   |                   | agc<br>Ser        | aag<br>Lys        | aag<br>Lys        | tac<br>Tyr<br>330 | cct<br>Pro        | gtg<br>Val        | gcc<br>Ala        | cat<br>His        | ttc<br>Phe<br>335 | Ile               | 1068 |
| gac<br>Asp        | caa<br>Gln        | act<br>Thr        | ttg<br>Leu<br>340     | Lys                 | gcc<br>Ala        | aag<br>Lys        | gtg<br>Val        | ggg<br>Gly<br>345 | cag<br>Gln        | ctg<br>Leu        | cag<br>Gln        | ctc<br>Leu        | tcc<br>Ser<br>350 | cac<br>His        | aat<br>Asn        | 1116 |
| ctg<br>Leu        | agt<br>Ser        | ttg<br>Leu<br>355 | gtg<br>Val            | atc<br>Ile          | ctg<br>Leu        | gta<br>Val        | ccc<br>Pro<br>360 | cag<br>Gln        | aac<br>Asn        | ctg<br>Leu        | aaa<br>Lys        | cat<br>His<br>365 | cgt<br>Arg        | ctt<br>Leu        | gaa<br>Glu        | 1164 |
| gac<br>Asp        | atg<br>Met<br>370 | gaa<br>Glu        | cag<br>Gln            | gct<br>Ala          | ctc<br>Leu        | agc<br>Ser<br>375 | cct<br>Pro        | tct<br>Ser        | gtt<br>Val        | ttc<br>Phe        | aag<br>Lys<br>380 | gcc<br>Ala        | atc<br>Ile        | atg<br>Met        | gag<br>Glu        | 1212 |
| aaa<br>Lys<br>385 | ctg<br>Leu        | gag<br>Glu        | atg<br>Met            | tcc<br>Ser          | aag<br>Lys<br>390 | ttc<br>Phe        | cag<br>Gln        | ccc<br>Pro        | act<br>Thr        | ctc<br>Leu<br>395 | cta<br>Leu        | aca<br>Thr        | cta<br>Leu        | ccc<br>Pro        | cgc<br>Arg<br>400 | 1260 |
| atc<br>Ile        | aaa<br>Lys        | gtg<br>Val        | acg<br>Thr            | acc<br>Thr<br>405   | agc<br>Ser        | cag<br>Gln        | gat<br>Asp        | atg<br>Met        | ctc<br>Leu<br>410 | tca<br>Ser        | atc<br>Ile        | atg<br>Met        | gag<br>Glu        | aaa<br>Lys<br>415 | ttg<br>Leu        | 1308 |
| gaa<br>Glu        | ttc<br>Phe        | ttc<br>Phe        | gat<br>Asp<br>420     | ttt<br>Phe          | tct<br>Ser        | tat<br>Tyr        | gac<br>Asp        | ctt<br>Leu<br>425 | aac<br>Asn        | ctg<br>Leu        | tgt<br>Cys        | Gly<br>aaa        | ctg<br>Leu<br>430 | aca<br>Thr        | gag<br>Glu        | 1356 |
| gac<br>Asp        | cca<br>Pro        | gat<br>Asp<br>435 | ctt<br>Leu            | cag<br>Gln          | gtt<br>Val        | tct<br>Ser        | gcg<br>Ala<br>440 | atg<br>Met        | cag<br>Gln        | cac<br>His        | cag<br>Gln        | aca<br>Thr<br>445 | gtg<br>Val        | ctg<br>Leu        | gaa<br>Glu        | 1404 |
| ctg<br>Leu        | aca<br>Thr<br>450 | gag<br>Glu        | act<br>Thr            | Gly<br>ggg          | gtg<br>Val        | gag<br>Glu<br>455 | gcg<br>Ala        | gct<br>Ala        | gca<br>Ala        | gcc<br>Ala        | tcc<br>Ser<br>460 | gcc<br>Ala        | atc<br>Ile        | tct<br>Ser        | gtg<br>Val        | 1452 |
| gcc<br>Ala        | cgc<br>Arg        | acc<br>Thr        | ctg<br>Leu            | ctg<br>Leu          | gtc<br>Val        | ttt<br>Phe        | gaa<br>Glu        | gtg<br>Val        | cag<br>Gln        | cag<br>Gln        | ccc<br>Pro        | ttc<br>Phe        | ctc<br>Leu        | ttc<br>Phe        | gtg<br>Val        | 1500 |

| 465                             | 5              |                          |                       |                   | 470       | )              |                |              |                   | 475       | 5          |                |                |                       | 480            |      |
|---------------------------------|----------------|--------------------------|-----------------------|-------------------|-----------|----------------|----------------|--------------|-------------------|-----------|------------|----------------|----------------|-----------------------|----------------|------|
| cto                             | tgç<br>Tr      | g gad<br>o Asp           | c cag<br>Gln          | cag<br>Glr<br>485 | ı His     | c aag<br>S Lys | g tto<br>S Phe | c cct<br>Pro | gto<br>Val<br>490 | l Phe     | ato<br>Met | : GJ7<br>a aaa | g cga<br>v Arg | g gta<br>g Val<br>495 | a tat<br>L Tyr | 1548 |
| gac<br>Asp                      | cco<br>Pro     | agg<br>Arg               | g gcc<br>g Ala<br>500 |                   | gaco      | etge           | agga           | itcag        | ıgt t             | aggg      | rcgag      | ge ge          | tacc           | tctc                  | :              | 1600 |
| cag                             | ccto           | agc                      | tctc                  | agtt              | gc a      | gccc           | tgct           | g ct         | gcct              | gcct      | gga        | cttg           | ccc            | ctgo                  | cacctc         | 1660 |
| ctg                             | cctc           | agg                      | tgtc                  | cgct              | at c      | cacc           | aaaa           | a aa         | rctcc             | tgag      | ggt        | ctgg           | gca            | aggg                  | acctgc         | 1720 |
| ttc                             | tatt           | agc                      | cctt                  | ctcc              | at g      | gccc           | tgcc           | a tg         | ctct              | ccaa      | acc        | actt           | ttt            | gcag                  | ctttct         | 1780 |
| cta                             | gtto           | aag                      | ttca                  | ccag              | ac t      | ctat           | aaat           | a aa         | .acct             | gaca      | gac        | cat            |                |                       |                | 1826 |
| <21<br><21<br><21<br><21<br><40 | 1><br>2><br>3> | 28<br>500<br>PRT<br>homo | sap                   | iens              |           |                |                |              |                   |           |            |                |                |                       |                |      |
| Met<br>1                        | Ala            | Ser                      | Arg                   | Leu<br>5          | Thr       | Leu            | Leu            | Thr          | Leu<br>10         | Leu       | Leu        | Leu            | Leu            | Leu<br>15             | Ala            |      |
| Gly                             | Asp            | Arg                      | Ala<br>20             | Ser               | Ser       | Asn            | Pro            | Asn<br>25    | Ala               | Thr       | Ser        | Ser            | Ser<br>30      | Ser                   | Gln            |      |
| Asp                             | Pro            | Glu<br>35                | Ser                   | Leu               | Gln       | Asp            | Arg<br>40      | Gly          | Glu               | Gly       | Lys        | Val<br>45      | Ala            | Thr                   | Thr            |      |
| Val                             | Ile<br>50      | Ser                      | Lys                   | Met               | Leu       | Phe<br>55      | Val            | Glu          | Pro               | Ile       | Leu<br>60  | Glu            | Val            | Ser                   | Ser            |      |
| Leu<br>65                       | Pro            | Thr                      | Thr                   | Asn               | Ser<br>70 | Thr            | Thr            | Asn          | Ser               | Ala<br>75 | Thr        | Lys            | Ile            | Thr                   | Ala<br>80      |      |
| Asn                             | Thr            | Thr                      | Asp                   | Glu<br>85         | Pro       | Thr            | Thr            | Gln          | Pro<br>90         | Thr       | Thr        | Glu            | Pro            | Thr<br>95             | Thr            |      |
| Gln                             | Pro            | Thr                      | Ile<br>100            | Gln               | Pro       | Thr            | Gln            | Pro<br>105   | Thr               | Thr       | Gln        | Leu            | Pro<br>110     | Thr                   | Asp            |      |
| Ser                             | Pro            | Thr<br>115               | Gln                   | Pro               | Thr       | Thr            | Gly<br>120     | Ser          | Phe               | Cys       | Pro        | Gly<br>125     | Pro            | Val                   | Thr            |      |

| Leu        | Cys<br>130 | Ser        | Asp        | Leu        | Glu        | Ser<br>135 | His        | Ser        | Thr        | Gľu        | Ala<br>140 | Val        | Leu        | Gly        | Asp        |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Ala<br>145 | Leu        | Val        | Asp        | Phe        | Ser<br>150 | Leu        | Lys        | Leu        | Tyr        | His<br>155 | Ala        | Phe        | Ser        | Gly        | Met<br>160 |
| Lys        | Lys        | Val        | Glu        | Thr<br>165 | Asn        | Met        | Ala        | Phe        | Ser<br>170 | Pro        | Phe        | Ser        | Ile        | Ala<br>175 | Ser        |
| Leu        | Leu        | Thr        | Gln<br>180 | Val        | Leu        | Leu        | Gly        | Ala<br>185 | Gly        | Gln        | Asn        | Thr        | Lys<br>190 | Thr        | Asn        |
| Leu        | Glu        | Ser<br>195 | Ile        | Leu        | Ser        | Tyr        | Pro<br>200 | Lys        | Asp        | Phe        | Thr        | Cys<br>205 | Val        | His        | Gln        |
| Ala        | Leu<br>210 | Lys        | Gly        | Phe        | Thr        | Thr<br>215 | Lys        | Gly        | Val        | Thr        | Ser<br>220 | Val        | Ser        | Gln        | Ile        |
| Phe<br>225 | His        | Ser        | Pro        | Asp        | Leu<br>230 | Ala        | Ile        | Arg        | Asp        | Thr<br>235 | Phe        | Val        | Asn        | Ala        | Ser<br>240 |
| Arg        | Thr        | Leu        | Tyr        | Ser<br>245 | Ser        | Ser        | Pro        | Arg        | Val<br>250 | Leu        | Ser        | Asn        | Asn        | Ser<br>255 | Asp        |
| Ala        | Asn        | Leu        | Glu<br>260 | Leu        | Ile        | Asn        | Thr        | Trp<br>265 | Val        | Ala        | Lys        | Asn        | Thr<br>270 | Asn        | Asn        |
| Lys        | Ile        | Ser<br>275 | Arg        | Leu        | Leu        | Asp        | Ser<br>280 | Leu        | Pro        | Ser        | Asp        | Thr<br>285 | Arg        | Leu        | Val        |
| Leu        | Leu<br>290 | Asn        | Ala        | Ile        | Tyr        | Leu<br>295 | Ser        | Ala        | Lys        | Trp        | Lys<br>300 | Thr        | Thr        | Phe        | Asp        |
| Pro<br>305 | Lys        | Lys        | Thr        | Arg        | Met<br>310 | Glu        | Pro        | Phe        | His        | Phe<br>315 | Lys        | Asn        | Ser        | Val        | Ile<br>320 |
| Lys        | Val        | Pro        | Met        | Met<br>325 | Asn        | Ser        | Lys        | Lys        | Туr<br>330 | Pro        | Val        | Ala        | His        | Phe<br>335 | Ile        |
| Asp        | Gln        | Thr        | Leu<br>340 | Lys        | Ala        | Lys        | Val        | Gly<br>345 | Gln        | Leu        | Gln        | Leu        | Ser<br>350 | His        | Asn        |

| Leu S                     | Ser I                   | Leu<br>855 | Val               | Ile        | Leu            | Val            | Pro<br>360   | Glr        | ı Asn            | Leu        | ı Lys        | His<br>365 |            | , Leu            | Glu        |     |
|---------------------------|-------------------------|------------|-------------------|------------|----------------|----------------|--------------|------------|------------------|------------|--------------|------------|------------|------------------|------------|-----|
| Asp M<br>3                | et G<br>70              | Slu (      | Gln               | Ala        | Leu            | Ser<br>375     | Pro          | Ser        | Val              | Phe        | Lys<br>380   |            | Il∈        | e Met            | Glu        |     |
| Lys L<br>385              | eu G                    | 3lu 1      | Met               | Ser        | Lys<br>390     | Phe            | Gln          | Pro        | Thr              | Leu<br>395 |              | Thr        | Leu        | Pro              | Arg<br>400 |     |
| Ile L                     | ys V                    | al '       | Thr               | Thr<br>405 | Ser            | Gln            | Asp          | Met        | Leu<br>410       | Ser        | Ile          | Met        | Glu        | Lys<br>415       | Leu        |     |
| Glu P                     | he P                    | he A       | Asp<br>420        | Phe        | Ser            | Tyr            | Asp          | Leu<br>425 | Asn              | Leu        | Cys          | Gly        | Leu<br>430 |                  | Glu        |     |
| Asp P                     | ro A<br>4               | sp I<br>35 | Leu               | Gln        | Val            | Ser            | Ala<br>440   | Met        | Gln              | His        | Gln          | Thr<br>445 | Val        | Leu              | Glu        |     |
| Leu Tl<br>49              | hr G<br>50              | lu T       | Thr               | Gly        | Val            | Glu<br>455     | Ala          | Ala        | Ala              | Ala        | Ser<br>460   | Ala        | Ile        | Ser              | Val        |     |
| Ala Aı<br>465             | rg T                    | hr I       | .eu               | Leu        | Val<br>470     | Phe            | Glu          | Val        | Gln              | Gln<br>475 | Pro          | Phe        | Leu        | Phe              | Val<br>480 |     |
| Leu Tr                    | rp As                   | sp G       | ln (              | Gln<br>485 | His            | Lys            | Phe          | Pro        | Val<br>490       | Phe        | Met          | Gly        | Arg        | Val<br>495       | Tyr        |     |
| Asp Pr                    | :0 A1                   |            | la<br>00          |            |                |                |              |            |                  |            |              |            |            |                  |            |     |
| <210><211><211><212><213> | 29<br>182<br>DNA<br>hom |            | apie              | ens        |                |                |              |            |                  |            |              |            |            |                  |            |     |
| <220><br><221><br><222>   | CDS                     | 3          |                   |            |                |                |              |            |                  |            |              |            |            |                  |            |     |
| <400>                     | 29                      |            |                   |            |                |                |              |            |                  |            |              |            |            |                  |            |     |
| agtctg                    | cact                    | gga        | agct              | gcc        | t gg           | tgac           | caga         | agt        | ttgg             | agt        | ccgc         | tgac       | gt c       | gccg             | cccag      | 60  |
| atg gc<br>Met Al<br>1     | c tc<br>a Se            | c ag       | gg c<br>rg I<br>5 | eu '       | acc (<br>Thr 1 | ctg (<br>Leu 1 | ctg<br>Leu ' | Thr        | ctc<br>Leu<br>10 | ctg<br>Leu | ctg<br>Leu : | ctg<br>Leu | Leu        | ctg<br>Leu<br>15 | gct<br>Ala | 108 |
| ggg ga                    | t ag                    | a go       | cc t              | .cc t      | ca a           | aat d          | cca a        | aat        | gct .            | acc        | agc 1        | tcc .      | agc        | tcc (            | cag        | 156 |

| Gly               | Asp               | Arg               | Ala<br>20         | Ser               | Ser               | Asn               | Pro               | Asn<br>25         | ı Ala             | Thr               | Ser               | Ser               | Ser               | Ser               | Gln               |   |     |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|---|-----|
| gat<br>Asp        | cca<br>Pro        | gag<br>Glu<br>35  | agt<br>Ser        | ttg<br>Leu        | caa<br>Gln        | gac<br>Asp        | aga<br>Arg<br>40  | ggc               | gaa<br>Glu        | ggg<br>Gly        | aag<br>Lys        | gtc<br>Val<br>45  | gca<br>Ala        | aca<br>Thr        | aca<br>Thr        |   | 204 |
| gtt<br>Val        | atc<br>Ile<br>50  | tcc<br>Ser        | aag<br>Lys        | atg<br>Met        | cta<br>Leu        | ttc<br>Phe<br>55  | gtt<br>Val        | gaa<br>Glu        | ccc<br>Pro        | atc<br>Ile        | ctg<br>Leu<br>60  | gag<br>Glu        | gtt<br>Val        | tcc<br>Ser        | agc<br>Ser        |   | 252 |
| ttg<br>Leu<br>65  | ccg<br>Pro        | aca<br>Thr        | acc<br>Thr        | aac<br>Asn        | tca<br>Ser<br>70  | aca<br>Thr        | acc<br>Thr        | aat<br>Asn        | tca<br>Ser        | gcc<br>Ala<br>75  | acc<br>Thr        | aaa<br>Lys        | ata<br>Ile        | aca<br>Thr        | gct<br>Ala<br>80  |   | 300 |
| aat<br>Asn        | acc<br>Thr        | act<br>Thr        | gat<br>Asp        | gaa<br>Glu<br>85  | ccc<br>Pro        | acc<br>Thr        | aca<br>Thr        | caa<br>Gln        | ccc<br>Pro<br>90  | acc<br>Thr        | aca<br>Thr        | gag<br>Glu        | ccc<br>Pro        | acc<br>Thr<br>95  | acc<br>Thr        |   | 348 |
| caa<br>Gln        | ccc<br>Pro        | acc<br>Thr        | atc<br>Ile<br>100 | caa<br>Gln        | ccc<br>Pro        | acc<br>Thr        | caa<br>Gln        | cca<br>Pro<br>105 | act<br>Thr        | acc<br>Thr        | cag<br>Gln        | ctc<br>Leu        | cca<br>Pro<br>110 | aca<br>Thr        | gat<br>Asp        |   | 396 |
| tct<br>Ser        | cct<br>Pro        | acc<br>Thr<br>115 | cag<br>Gln        | ccc<br>Pro        | act<br>Thr        | act<br>Thr        | ggg<br>Gly<br>120 | tcc<br>Ser        | ttc<br>Phe        | tgc<br>Cys        | cca<br>Pro        | gga<br>Gly<br>125 | cct<br>Pro        | gtt<br>Val        | act<br>Thr        |   | 444 |
| ctc<br>Leu        | tgc<br>Cys<br>130 | tct<br>Ser        | gac<br>Asp        | ttg<br>Leu        | gag<br>Glu        | agt<br>Ser<br>135 | cat<br>His        | tca<br>Ser        | aca<br>Thr        | gag<br>Glu        | gcc<br>Ala<br>140 | gtg<br>Val        | ttg<br>Leu        | Gly               | gat<br>Asp        |   | 492 |
| gct<br>Ala<br>145 | ttg<br>Leu        | gta<br>Val        | gat<br>Asp        | ttc<br>Phe        | tcc<br>Ser<br>150 | ctg<br>Leu        | aag<br>Lys        | ctc<br>Leu        | tac<br>Tyr        | cac<br>His<br>155 | gcc<br>Ala        | ttc<br>Phe        | tca<br>Ser        | gca<br>Ala        | atg<br>Met<br>160 |   | 540 |
| aag<br>Lys        | aag<br>Lys        | gtg<br>Val        | gag<br>Glu        | acc<br>Thr<br>165 | aac<br>Asn        | atg<br>Met        | gcc<br>Ala        | ttt<br>Phe        | tcc<br>Ser<br>170 | cca<br>Pro        | ttc<br>Phe        | agc<br>Ser        | atc<br>Ile        | gcc<br>Ala<br>175 | agc<br>Ser        |   | 588 |
| ctc<br>Leu        | ctt<br>Leu        | Thr               | cag<br>Gln<br>180 | gtc<br>Val        | ctg<br>Leu        | ctc<br>Leu        | Gly<br>Ggg        | gct<br>Ala<br>185 | GJA<br>aaa        | cag<br>Gln        | aac<br>Asn        | acc<br>Thr        | aaa<br>Lys<br>190 | aca<br>Thr        | aac<br>Asn        |   | 636 |
| ctg<br>Leu        | gag<br>Glu        | agc<br>Ser<br>195 | atc<br>Ile        | ctc<br>Leu        | tct<br>Ser        | tac<br>Tyr        | ccc<br>Pro<br>200 | aag<br>Lys        | gac<br>Asp        | ttc<br>Phe        | acc<br>Thr        | tgt<br>Cys<br>205 | gtc<br>Val        | cac<br>His        | cag<br>Gln        |   | 684 |
| gcc<br>Ala        | ctg<br>Leu<br>210 | aag<br>Lys        | ggc<br>Gly        | ttc<br>Phe        | acg<br>Thr        | acc<br>Thr<br>215 | aaa<br>Lys        | ggt<br>Gly        | gtc<br>Val        | acc<br>Thr        | tca<br>Ser<br>220 | gtc<br>Val        | tct<br>Ser        | cag<br>Gln        | atc<br>Ile        |   | 732 |
| ttc<br>Phe<br>225 | cac<br>His        | agc<br>Ser        | cca<br>Pro        | gac<br>Asp        | ctg<br>Leu<br>230 | gcc<br>Ala        | ata<br>Ile        | agg<br>Arg        | gac<br>Asp        | acc<br>Thr<br>235 | ttt<br>Phe        | gtg<br>Val        | aat<br>Asn        | gcc<br>Ala        | tct<br>Ser<br>240 |   | 780 |
| cgg<br>Arg        | acc<br>Thr        | ctg<br>Leu        | tac<br>Tyr        | agc<br>Ser        | agc<br>Ser        | agc<br>Ser        | ccc<br>Pro        | aga<br>Arg        | gtc<br>Val        | cta<br>Leu        | agc<br>Ser        | aac<br>Asn        | aac<br>Asn        | agt<br>Ser        | gac<br>Asp        | 8 | 828 |

|                   |                   |                   |                   | 245               | 5                 |                   |                   |                   | 250               | )                 |                   |                   |                   | 255               | 5                 |      |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| gcc<br>Ala        | aac<br>Asr        | tto<br>Lei        | gag<br>Glu<br>260 | Let               | ato<br>Ile        | aac<br>Asr        | acc<br>Thr        | tgg<br>Trp<br>265 | Val               | g gco<br>L Ala    | aag<br>Lys        | g aac<br>s Asn    | acc<br>Thr<br>270 | Asr               | aac<br>Asn        | 876  |
| aag<br>Lys        | atc<br>Ile        | ago<br>Ser<br>275 | Arg               | ctg<br>Leu        | g cta<br>Leu      | gac<br>Asp        | agt<br>Ser<br>280 | Leu               | ccc<br>Pro        | tco<br>Ser        | gat<br>Asp        | acc<br>Thr<br>285 | Arg               | ctt<br>Leu        | gtc<br>Val        | 924  |
| ctc<br>Leu        | cto<br>Leu<br>290 | . Asn             | gct<br>Ala        | ato               | tac<br>Tyr        | ctg<br>Leu<br>295 | Ser               | gcc<br>Ala        | aag<br>Lys        | tgg<br>Trp        | aag<br>Lys<br>300 | Thr               | aca<br>Thr        | ttt<br>Phe        | gat<br>Asp        | 972  |
| ccc<br>Pro<br>305 | Lys               | aaa<br>Lys        | acc<br>Thr        | aga<br>Arg        | atg<br>Met<br>310 | gaa<br>Glu        | ccc<br>Pro        | ttt<br>Phe        | cac<br>His        | ttc<br>Phe<br>315 | Lys               | aac<br>Asn        | tca<br>Ser        | gtt<br>Val        | ata<br>Ile<br>320 | 1020 |
| aaa<br>Lys        | gtg<br>Val        | ccc<br>Pro        | atg<br>Met        | atg<br>Met<br>325 | aat<br>Asn        | agc<br>Ser        | aag<br>Lys        | aag<br>Lys        | tac<br>Tyr<br>330 | Pro               | gtg<br>Val        | gcc<br>Ala        | cat<br>His        | ttc<br>Phe<br>335 | Ile               | 1068 |
| gac<br>Asp        | caa<br>Gln        | act<br>Thr        | ttg<br>Leu<br>340 | aaa<br>Lys        | gcc<br>Ala        | aag<br>Lys        | gtg<br>Val        | ggg<br>Gly<br>345 | cag<br>Gln        | ctg<br>Leu        | cag<br>Gln        | ctc<br>Leu        | tcc<br>Ser<br>350 | cac<br>His        | aat<br>Asn        | 1116 |
| ctg<br>Leu        | agt<br>Ser        | ttg<br>Leu<br>355 | gtg<br>Val        | atc<br>Ile        | ctg<br>Leu        | gta<br>Val        | ccc<br>Pro<br>360 | cag<br>Gln        | aac<br>Asn        | ctg<br>Leu        | aaa<br>Lys        | cat<br>His<br>365 | cgt<br>Arg        | ctt<br>Leu        | gaa<br>Glu        | 1164 |
| gac<br>Asp        | atg<br>Met<br>370 | gaa<br>Glu        | cag<br>Gln        | gct<br>Ala        | ctc<br>Leu        | agc<br>Ser<br>375 | cct<br>Pro        | tct<br>Ser        | gtt<br>Val        | ttc<br>Phe        | aag<br>Lys<br>380 | gcc<br>Ala        | atc<br>Ile        | atg<br>Met        | gag<br>Glu        | 1212 |
| aaa<br>Lys<br>385 | ctg<br>Leu        | gag<br>Glu        | atg<br>Met        | tcc<br>Ser        | aag<br>Lys<br>390 | ttc<br>Phe        | cag<br>Gln        | ccc<br>Pro        | act<br>Thr        | ctc<br>Leu<br>395 | cta<br>Leu        | aca<br>Thr        | cta<br>Leu        | ccc<br>Pro        | cgc<br>Arg<br>400 | 1260 |
| atc<br>Ile        | aaa<br>Lys        | gtg<br>Val        | acg<br>Thr        | acc<br>Thr<br>405 | agc<br>Ser        | cag<br>Gln        | gat<br>Asp        | atg<br>Met        | ctc<br>Leu<br>410 | tca<br>Ser        | atc<br>Ile        | atg<br>Met        | gag<br>Glu        | aaa<br>Lys<br>415 | ttg<br>Leu        | 1308 |
| gaa<br>Glú        | ttc<br>Phe        | ttc<br>Phe        | gat<br>Asp<br>420 | ttt<br>Phe        | tct<br>Ser        | tat<br>Tyr        | gac<br>Asp        | ctt<br>Leu<br>425 | aac<br>Asn        | ctg<br>Leu        | tgt<br>Cys        | Gly<br>ggg        | ctg<br>Leu<br>430 | aca<br>Thr        | gag<br>Glu        | 1356 |
| gac<br>Asp        | cca<br>Pro        | gat<br>Asp<br>435 | ctt<br>Leu        | cag<br>Gln        | gtt<br>Val        | tct<br>Ser        | gcg<br>Ala<br>440 | atg<br>Met        | cag<br>Gln        | cac<br>His        | cag<br>Gln        | aca<br>Thr<br>445 | gtg<br>Val        | ctg<br>Leu        | gaa<br>Glu        | 1404 |
| Leu               | aca<br>Thr<br>450 | gag<br>Glu        | act<br>Thr        | Gly<br>aaa        | gtg<br>Val        | gag<br>Glu<br>455 | gcg<br>Ala        | gct<br>Ala        | gca<br>Ala        | gcc<br>Ala        | tcc<br>Ser<br>460 | gcc<br>Ala        | atc<br>Ile        | tct<br>Ser        | gtg<br>Val        | 1452 |
| gcc<br>Ala<br>465 | cgc<br>Arg        | acc<br>Thr        | ctg<br>Leu        | ctg<br>Leu        | gtc<br>Val<br>470 | ttt<br>Phe        | gaa<br>Glu        | gtg<br>Val        | cag<br>Gln        | cag<br>Gln<br>475 | ccc<br>Pro        | ttc<br>Phe        | ctc<br>Leu        | ttc<br>Phe        | atg<br>Met<br>480 | 1500 |

| ctc tgg gac cag cag cac aag ttc cct gtc ttc atg ggg cga gta tat<br>Leu Trp Asp Gln Gln His Lys Phe Pro Val Phe Met Gly Arg Val Tyr<br>485 490 495 | 1548 |  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|------|--|--|--|--|--|--|--|--|--|--|--|--|--|
| gac ccc agg gcc tgagacctgc aggatcaggt tagggcgagc gctacctctc<br>Asp Pro Arg Ala<br>500   | 1600 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| cagecteage teteagttge agecetgetg etgeetgeet ggaettgeee etgeeacete   |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ctgcctcagg tgtccgctat ccaccaaaag ggctcctgag ggtctgggca agggacctgc   |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ttctattagc ccttctccat ggccctgcca tgctctccaa accacttttt gcagctttct   |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ctagttcaag ttcaccagac tctataaata aaacctgaca gaccat  | 1826 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <210> 30<br><211> 500<br><212> PRT<br><213> homo sapiens  |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <400> 30  |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Met Ala Ser Arg Leu Thr Leu Leu Thr Leu Leu Leu Leu Leu Ala<br>1 5 10 15  |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Gly Asp Arg Ala Ser Ser Asn Pro Asn Ala Thr Ser Ser Ser Gln 20 25 30  |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Asp Pro Glu Ser Leu Gln Asp Arg Gly Glu Gly Lys Val Ala Thr Thr 35 40 45  |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Val Ile Ser Lys Met Leu Phe Val Glu Pro Ile Leu Glu Val Ser Ser<br>50 55 60   |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Leu Pro Thr Thr Asn Ser Thr Thr Asn Ser Ala Thr Lys Ile Thr Ala 65 70 75 80   |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Asn Thr Thr Asp Glu Pro Thr Thr Gln Pro Thr Thr Glu Pro Thr Thr 85 90 95  |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Gln Pro Thr Ile Gln Pro Thr Gln Pro Thr Thr Gln Leu Pro Thr Asp<br>100 105 110  |      |  |  |  |  |  |  |  |  |  |  |  |  |  |

Ser Pro Thr Gln Pro Thr Thr Gly Ser Phe Cys Pro Gly Pro Val Thr 115 120 125

Leu Cys Ser Asp Leu Glu Ser His Ser Thr Glu Ala Val Leu Gly Asp 130 135 140

Ala Leu Val Asp Phe Ser Leu Lys Leu Tyr His Ala Phe Ser Ala Met 145 150 155 160

Lys Lys Val Glu Thr Asn Met Ala Phe Ser Pro Phe Ser Ile Ala Ser 165 170 175

Leu Leu Thr Gln Val Leu Leu Gly Ala Gly Gln Asn Thr Lys Thr Asn 180 185 190

Leu Glu Ser Ile Leu Ser Tyr Pro Lys Asp Phe Thr Cys Val His Gln
195 200 205

Ala Leu Lys Gly Phe Thr Thr Lys Gly Val Thr Ser Val Ser Gln Ile 210 215 220

Phe His Ser Pro Asp Leu Ala Ile Arg Asp Thr Phe Val Asn Ala Ser 225 230 235 240

Arg Thr Leu Tyr Ser Ser Ser Pro Arg Val Leu Ser Asn Asn Ser Asp 245 250 255

Ala Asn Leu Glu Leu Ile Asn Thr Trp Val Ala Lys Asn Thr Asn Asn 260 265 270

Lys Ile Ser Arg Leu Leu Asp Ser Leu Pro Ser Asp Thr Arg Leu Val 275 280 285

Leu Leu Asn Ala Ile Tyr Leu Ser Ala Lys Trp Lys Thr Thr Phe Asp 290 295 300

Pro Lys Lys Thr Arg Met Glu Pro Phe His Phe Lys Asn Ser Val Ile 305 310 315 320

Lys Val Pro Met Met Asn Ser Lys Lys Tyr Pro Val Ala His Phe Ile 325 330 335

Asp Gln Thr Leu Lys Ala Lys Val Gly Gln Leu Gln Leu Ser His Asn 340 345 350

Leu Ser Leu Val Ile Leu Val Pro Gln Asn Leu Lys His Arg Leu Glu

|                              |            | 355                      |                  |            |            |            | 360        |                  |            |            |            | 365        |                  |            |            |     |
|------------------------------|------------|--------------------------|------------------|------------|------------|------------|------------|------------------|------------|------------|------------|------------|------------------|------------|------------|-----|
| Asp                          | Met<br>370 | Glu                      | Gln              | Ala        | Leu        | Ser<br>375 | Pro        | Ser              | Val        | Phe        | Lys<br>380 | Ala        | Ile              | Met        | Glu        |     |
| Lys<br>385                   | Leu        | Glu                      | Met              | Ser        | Lys<br>390 | Phe        | Gln        | Pro              | Thr        | Leu<br>395 | Leu        | Thr        | Leu              | Pro        | Arg<br>400 |     |
| Ile                          | Lys        | Val                      | Thr              | Thr<br>405 | Ser        | Gln        | Asp        | Met              | Leu<br>410 | Ser        | Ile        | Met        | Glu              | Lys<br>415 | Leu        |     |
| Glu                          | Phe        | Phe                      | Asp<br>420       | Phe        | Ser        | Tyr        | Asp        | Leu<br>425       | Asn        | Leu        | Cys        | Gly        | Leu<br>430       | Thr        | Glu        |     |
| Asp                          | Pro        | Asp<br>435               | Leu              | Gln        | Val        | Ser        | Ala<br>440 | Met              | Gln        | His        | Gln        | Thr<br>445 | Val              | Leu        | Glu        |     |
| Leu                          | Thr<br>450 | Glu                      | Thr              | Gly        | Val        | Glu<br>455 | Ala        | Ala              | Ala        | Ala        | Ser<br>460 | Ala        | Ile              | Ser        | Val        |     |
| Ala<br>465                   | Arg        | Thr                      | Leu              | Leu        | Val<br>470 | Phe        | Glu        | Val              | Gln        | Gln<br>475 | Pro        | Phe        | Leu              | Phe        | Met<br>480 |     |
| Leu                          | Trp        | Asp                      | Gln              | Gln<br>485 | His        | Lys        | Phe        | Pro              | Val<br>490 | Phe        | Met        | Gly        | Arg              | Val<br>495 | Tyr        |     |
| Asp                          | Pro        | Arg                      | Ala<br>500       |            |            |            |            |                  |            |            |            |            |                  |            |            |     |
| <210<br><211<br><212<br><213 | > 8<br>> D | 51<br>571<br>DNA<br>LOMO | sapi             | ens        |            |            |            |                  |            |            |            |            |                  |            |            |     |
| <220:<br><221:<br><222:      | > C        | DS<br>37).               | . (82            | 2)         |            |            |            |                  |            |            |            |            |                  |            |            |     |
| <400                         |            | 1                        |                  |            |            |            |            |                  |            |            |            |            |                  |            |            |     |
| tcct                         | ccac       | ct g                     | ıctgg            | cccc       | t gg       | acac       | ctct       | gto              |            |            | tgg<br>Trp |            |                  |            |            | 54  |
| tgc (<br>Cys )               | ctc<br>Leu | gcc<br>Ala               | ctg<br>Leu<br>10 | tcc<br>Ser | ctg<br>Leu | Gly<br>ggg | Gly<br>ggg | act<br>Thr<br>15 | ggt<br>Gly | gct<br>Ala | gcg<br>Ala | ccc<br>Pro | ccg<br>Pro<br>20 | att<br>Ile | cag<br>Gln | 102 |

| tcc<br>Ser        | cgg<br>Arg        | att<br>Ile<br>25  | gtg<br>Val        | gga<br>Gly        | ggc               | tgg<br>Trp        | gag<br>Glu<br>30  | tgt<br>Cys        | gag<br>Glu        | cag<br>Gln        | cat<br>His        | tcc<br>Ser<br>35  | cag<br>Gln        | ccc<br>Pro        | tgg<br>Trp        | 150 |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-----|
| cag<br>Gln        | gcg<br>Ala<br>40  | gct<br>Ala        | ctg<br>Leu        | tac<br>Tyr        | cat<br>His        | ttc<br>Phe<br>45  | agc<br>Ser        | act<br>Thr        | ttc<br>Phe        | cag<br>Gln        | tgt<br>Cys<br>50  | Gly<br>aaa        | ggc               | atc<br>Ile        | ctg<br>Leu        | 198 |
| gtg<br>Val<br>55  | cac<br>His        | cgc<br>Arg        | cag<br>Gln        | tgg<br>Trp        | gtg<br>Val<br>60  | ctc<br>Leu        | aca<br>Thr        | gct<br>Ala        | gct<br>Ala        | cat<br>His<br>65  | tgc<br>Cys        | atc<br>Ile        | agc<br>Ser        | gac<br>Asp        | aat<br>Asn<br>70  | 246 |
| tac<br>Tyr        | cag<br>Gln        | ctc<br>Leu        | tgg<br>Trp        | ctg<br>Leu<br>75  | ggt<br>Gly        | cgc<br>Arg        | cac<br>His        | aac<br>Asn        | ttg<br>Leu<br>80  | ttt<br>Phe        | gac<br>Asp        | gac<br>Asp        | gaa<br>Glu        | aac<br>Asn<br>85  | aca<br>Thr        | 294 |
| Ala               | Gln               | Phe               | Val<br>90         | His               | Val               | agt<br>Ser        | Glu               | Ser<br>95         | Phe               | Pro               | His               | Pro               | Gly<br>100        | Phe               | Asn               | 342 |
| Met               | Ser               | Leu<br>105        | Leu               | Glu               | Asn               | cac<br>His        | Thr<br>110        | Arg               | Gln               | Ala               | Asp               | Glu<br>115        | Asp               | Tyr               | Ser               | 390 |
| cac<br>His        | gac<br>Asp<br>120 | ctc<br>Leu        | atg<br>Met        | ctg<br>Leu        | ctc<br>Leu        | cgc<br>Arg<br>125 | ctg<br>Leu        | aca<br>Thr        | gag<br>Glu        | cct<br>Pro        | gct<br>Ala<br>130 | gat<br>Asp        | acc<br>Thr        | atc<br>Ile        | aca<br>Thr        | 438 |
| gat<br>Asp<br>135 | gct<br>Ala        | gtg<br>Val        | aag<br>Lys        | gtc<br>Val        | gtg<br>Val<br>140 | gag<br>Glu        | ttg<br>Leu        | ccc<br>Pro        | acc<br>Thr        | gag<br>Glu<br>145 | gaa<br>Glu        | ccc<br>Pro        | gaa<br>Glu        | gtg<br>Val        | ggg<br>150        | 486 |
| agc<br>Ser        | acc<br>Thr        | tgt<br>Cys        | ttg<br>Leu        | gct<br>Ala<br>155 | tcc<br>Ser        | ggc<br>Gly        | tgg<br>Trp        | ggc<br>Gly        | agc<br>Ser<br>160 | atc<br>Ile        | gaa<br>Glu        | cca<br>Pro        | gag<br>Glu        | aat<br>Asn<br>165 | ttc<br>Phe        | 534 |
| tca<br>Ser        | ttt<br>Phe        | cca<br>Pro        | gat<br>Asp<br>170 | gat<br>Asp        | ctc<br>Leu        | cag<br>Gln        | tgt<br>Cys        | gtg<br>Val<br>175 | gac<br>Asp        | ctc<br>Leu        | aaa<br>Lys        | atc<br>Ile        | ctg<br>Leu<br>180 | cct<br>Pro        | aat<br>Asn        | 582 |
| gat<br>Asp        | gag<br>Glu        | tgc<br>Cys<br>185 | aaa<br>Lys        | aaa<br>Lys        | gcc<br>Ala        | cac<br>His        | gtc<br>Val<br>190 | cag<br>Gln        | aag<br>Lys        | gtg<br>Val        | aca<br>Thr        | gac<br>Asp<br>195 | ttc<br>Phe        | atg<br>Met        | ctg<br>Leu        | 630 |
| tgt<br>Cys        | gtc<br>Val<br>200 | gga<br>Gly        | cac<br>His        | ctg<br>Leu        | gaa<br>Glu        | ggt<br>Gly<br>205 | ggc<br>Gly        | aaa<br>Lys        | gac<br>Asp        | acc<br>Thr        | tgt<br>Cys<br>210 | gtg<br>Val        | ggt<br>Gly        | gat<br>Asp        | tca<br>Ser        | 678 |
| ggg<br>Gly<br>215 | Gly               | ccg<br>Pro        | ctg<br>Leu        | atg<br>Met        | tgt<br>Cys<br>220 | gat<br>Asp        | ggt<br>Gly        | gtg<br>Val        | ctc<br>Leu        | caa<br>Gln<br>225 | ggt<br>Gly        | gtc<br>Val        | aca<br>Thr        | tca<br>Ser        | tgg<br>Trp<br>230 | 726 |
| ggc<br>Gly        | tac<br>Tyr        | gtc<br>Val        | Pro               | tgt<br>Cys<br>235 | ggc<br>Gly        | acc<br>Thr        | ccc<br>Pro        | Asn               | aag<br>Lys<br>240 | cct<br>Pro        | tct<br>Ser        | gtc<br>Val        | gcc<br>Ala        | gtc<br>Val<br>245 | aga<br>Arg        | 774 |
| gtg               | ctg               | tct               | tat               | gtg               | aag               | tgg               | atc               | gag               | gac               | acc               | ata               | gcg               | gag               | aac               | tcc               | 822 |

## Val Leu Ser Tyr Val Lys Trp Ile Glu Asp Thr Ile Ala Glu Asn Ser 255

tgaacgccca gccctgtccc ctacccccag taaaatcaaa tgtgcatcc

871

| < | 2 | 1 | 0 | > | 3 | 2 |
|---|---|---|---|---|---|---|
|   | - |   |   |   |   |   |

<211> 262 <212> PRT

<213> homo sapiens

<400> 32

Met Trp Phe Leu Val Leu Cys Leu Ala Leu Ser Leu Gly Gly Thr Gly

Ala Ala Pro Pro Ile Gln Ser Arg Ile Val Gly Gly Trp Glu Cys Glu

Gln His Ser Gln Pro Trp Gln Ala Ala Leu Tyr His Phe Ser Thr Phe

Gln Cys Gly Gly Ile Leu Val His Arg Gln Trp Val Leu Thr Ala Ala 55

His Cys Ile Ser Asp Asn Tyr Gln Leu Trp Leu Gly Arg His Asn Leu

Phe Asp Asp Glu Asn Thr Ala Gln Phe Val His Val Ser Glu Ser Phe 90

Pro His Pro Gly Phe Asn Met Ser Leu Leu Glu Asn His Thr Arg Gln 100 105

Ala Asp Glu Asp Tyr Ser His Asp Leu Met Leu Leu Arg Leu Thr Glu 120

Pro Ala Asp Thr Ile Thr Asp Ala Val Lys Val Val Glu Leu Pro Thr 135

Glu Glu Pro Glu Val Gly Ser Thr Cys Leu Ala Ser Gly Trp Gly Ser 150 155

Ile Glu Pro Glu Asn Phe Ser Phe Pro Asp Asp Leu Gln Cys Val Asp 165 170

| Leu Lys Ile                             | Leu Pro<br>180           | Asn As                                    | p Glu                   | Cys<br>185        |                   | Lys                     | Ala                     | His               | Val<br>190        | Gln               | Lys                     |            |
|---|--------------------------|---|-------------------------|-------------------|-------------------|-------------------------|-------------------------|-------------------|-------------------|-------------------|-------------------------|------------|
| Val Thr Asp<br>195                      | Phe Met                  | : Leu Cy                                  | s Val<br>200            |                   | His               | Leu                     | Glu                     | Gly<br>205        | Gly               | Lys               | Asp                     |            |
| Thr Cys Val<br>210                      | Gly Asp                  | Ser Gl<br>21                              |                         | Pro               | Leu               | Met                     | Cys<br>220              | Asp               | Gly               | Val               | Leu                     |            |
| Gln Gly Val<br>225                      | Thr Ser                  | Trp Gl<br>230                             | y Tyr                   | Val               | Pro               | Cys<br>235              | Gly                     | Thr               | Pro               | Asn               | Lys<br>240              |            |
| Pro Ser Val                             | 245                      |   | l Leu                   | Ser               | Tyr<br>250        | Val                     | Lys                     | Trp               | Ile               | Glu<br>255        | Asp                     |            |
| Thr Ile Ala                             | Glu Asn<br>260           | Ser                                       |                         |                   |                   |                         |                         |                   |                   |                   |                         |            |
| <210> 33 <211> 871 <212> DNA <213> homo | sapiens                  |   |                         |                   |                   |                         |                         |                   |                   |                   |                         |            |
|   | (822)                    | D   |                         |                   |                   |                         |                         |                   |                   |                   |                         |            |
| <400> 33<br>tcctccacct (                | gctggccc                 | ct ggac                                   | acctci                  | t gto             | cacc              |                         | tgg<br>Trp              |                   |                   |                   |                         | 54         |
| tgc ctc gcc<br>Cys Leu Ala              | ctg tcc<br>Leu Ser<br>10 | ctg gg<br>Leu Gl                          | A GJA<br>a aaa          | act<br>Thr<br>15  | ggt<br>Gly        | gct<br>Ala              | gcg<br>Ala              | ccc<br>Pro        | ccg<br>Pro<br>20  | att<br>Ile        | cag<br>Gln              | 102        |
| tcc cgg att<br>Ser Arg Ile<br>25        | gtg gga<br>Val Gly       | ggc tgg<br>Gly Tr                         | g gag<br>Glu<br>30      | tgt<br>Cys        | gag<br>Glu        | cag<br>Gln              | cat<br>His              | tcc<br>Ser<br>35  | cag<br>Gln        | ccc<br>Pro        | tgg<br>Trp              | 150        |
|   |                          |   |                         |                   |                   |                         |                         |                   |                   |                   |                         |            |
| cag gcg gct<br>Gln Ala Ala<br>40        | Leu Tyr                  | His Pho                                   | e Ser                   | Thr               | Phe               | Gln                     | Cys<br>50               | Gly               | Gly               | Ile               | Leu                     | 198        |
| Gln Ala Ala                             | Leu Tyr cag tgg Gln Trp  | His Pho<br>45<br>gtg ctc<br>Val Let<br>60 | e Ser<br>c aca<br>ı Thr | Thr<br>gct<br>Ala | Phe<br>gct<br>Ala | Gln<br>cat<br>His<br>65 | Cys<br>50<br>tgc<br>Cys | Gly<br>atc<br>Ile | Gly<br>agc<br>Ser | Ile<br>gac<br>Asp | Leu<br>aat<br>Asn<br>70 | 198<br>246 |

| gcc<br>Ala                | cag<br>Gln         | ttt<br>Phe        | gtt<br>Val<br>90  | cat<br>His        | gtc<br>Val        | agt<br>Ser        | gag<br>Glu        | agc<br>Ser<br>95  | ttc<br>Phe        | cca<br>Pro        | cac<br>His        | cct<br>Pro        | ggc<br>Gly<br>100 | ttc<br>Phe        | aac<br>Asn        | 342 |
|---------------------------|--------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-----|
| atg<br>Met                | agc<br>Ser         | ctc<br>Leu<br>105 | ctg<br>Leu        | gag<br>Glu        | aac<br>Asn        | cac<br>His        | acc<br>Thr<br>110 | cgc<br>Arg        | caa<br>Gln        | gca<br>Ala        | gac<br>Asp        | gag<br>Glu<br>115 | gac<br>Asp        | tac<br>Tyr        | agc<br>Ser        | 390 |
| cac (                     | gac<br>Asp<br>120  | ctc<br>Leu        | atg<br>Met        | ctg<br>Leu        | ctc<br>Leu        | cgc<br>Arg<br>125 | ctg<br>Leu        | aca<br>Thr        | gag<br>Glu        | cct<br>Pro        | gct<br>Ala<br>130 | gat<br>Asp        | acc<br>Thr        | atc<br>Ile        | aca<br>Thr        | 438 |
| gat q<br>Asp 1<br>135     | gct<br>Ala         | gtg<br>Val        | aag<br>Lys        | gtc<br>Val        | gtg<br>Val<br>140 | gag<br>Glu        | ttg<br>Leu        | ccc<br>Pro        | acc<br>Thr        | gag<br>Glu<br>145 | gaa<br>Glu        | ccc<br>Pro        | gaa<br>Glu        | gtg<br>Val        | ggg<br>Gly<br>150 | 486 |
| agc a                     | acc<br>Thr         | tgt<br>Cys        | ttg<br>Leu        | gct<br>Ala<br>155 | tcc<br>Ser        | Gly<br>ggc        | tgg<br>Trp        | ggc<br>Gly        | agc<br>Ser<br>160 | atc<br>Ile        | gaa<br>Glu        | cca<br>Pro        | gag<br>Glu        | aat<br>Asn<br>165 | ttc<br>Phe        | 534 |
| tca (<br>Ser )            | ttt<br>Phe         | cca<br>Pro        | gat<br>Asp<br>170 | gat<br>Asp        | ctc<br>Leu        | cag<br>Gln        | tgt<br>Cys        | gtg<br>Val<br>175 | gac<br>Asp        | ctc<br>Leu        | aaa<br>Lys        | atc<br>Ile        | ctg<br>Leu<br>180 | cct<br>Pro        | aat<br>Asn        | 582 |
| gat (<br>Asp (            | Glu                | tgc<br>Cys<br>185 | gaa<br>Glu        | aaa<br>Lys        | gcc<br>Ala        | cac<br>His        | gtc<br>Val<br>190 | cag<br>Gln        | aag<br>Lys        | gtg<br>Val        | aca<br>Thr        | gac<br>Asp<br>195 | ttc<br>Phe        | atg<br>Met        | ctg<br>Leu        | 630 |
| tgt g<br>Cys V            | gtc<br>Val<br>200  | gga<br>Gly        | cac<br>His        | ctg<br>Leu        | gaa<br>Glu        | ggt<br>Gly<br>205 | ggc               | aaa<br>Lys        | gac<br>Asp        | acc<br>Thr        | tgt<br>Cys<br>210 | gtg<br>Val        | ggt<br>Gly        | gat<br>Asp        | tca<br>Ser        | 678 |
| 999 9<br>Gly (<br>215     | ggc<br>Gly         | ccg<br>Pro        | ctg<br>Leu        | atg<br>Met        | tgt<br>Cys<br>220 | gat<br>Asp        | ggt<br>Gly        | gtg<br>Val        | ctc<br>Leu        | caa<br>Gln<br>225 | ggt<br>Gly        | gtc<br>Val        | aca<br>Thr        | tca<br>Ser        | tgg<br>Trp<br>230 | 726 |
| ggc t<br>Gly 1            | tac<br>Tyr         | gtc<br>Val        | cct<br>Pro        | tgt<br>Cys<br>235 | ggc<br>Gly        | acc<br>Thr        | ccc<br>Pro        | aat<br>Asn        | aag<br>Lys<br>240 | cct<br>Pro        | tct<br>Ser        | gtc<br>Val        | gcc<br>Ala        | gtc<br>Val<br>245 | aga<br>Arg        | 774 |
| gtg o<br>Val I            | ctg<br>Leu         | tct<br>Ser        | tat<br>Tyr<br>250 | gtg<br>Val        | aag<br>Lys        | tgg<br>Trp        | atc<br>Ile        | gag<br>Glu<br>255 | gac<br>Asp        | acc<br>Thr        | ata<br>Ile        | gcg<br>Ala        | gag<br>Glu<br>260 | aac<br>Asn        | tcc<br>Ser        | 822 |
| tgaac                     | gcc                | ca g              | ccct              | gtcc              | c ct              | accc              | ccag              | r taa             | aato              | aaa               | tgtg              | cato              | :c                |                   |                   | 871 |
| <210><211><211><212><213> | > 2<br>> P:<br>> h | 62<br>RT          | sapi              | ens               |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |     |
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Met Trp Phe Leu Val Leu Cys Leu Ala Leu Ser Leu Gly Gly Thr Gly 1 5 10 15

Ala Ala Pro Pro Ile Gln Ser Arg Ile Val Gly Gly Trp Glu Cys Glu 20 25 30

Gln His Ser Gln Pro Trp Gln Ala Ala Leu Tyr His Phe Ser Thr Phe 35 40 45

Gln Cys Gly Gly Ile Leu Val His Arg Gln Trp Val Leu Thr Ala Ala 50 55 60

His Cys Ile Ser Asp Asn Tyr Gln Leu Trp Leu Gly Arg His Asn Leu 65 70 75 80

Phe Asp Asp Glu Asn Thr Ala Gln Phe Val His Val Ser Glu Ser Phe 85 90 95

Pro His Pro Gly Phe Asn Met Ser Leu Leu Glu Asn His Thr Arg Gln 100 105 110

Ala Asp Glu Asp Tyr Ser His Asp Leu Met Leu Leu Arg Leu Thr Glu 115 120 125

Pro Ala Asp Thr Ile Thr Asp Ala Val Lys Val Val Glu Leu Pro Thr 130 135 140

Glu Glu Pro Glu Val Gly Ser Thr Cys Leu Ala Ser Gly Trp Gly Ser 145 150 155 160

Ile Glu Pro Glu Asn Phe Ser Phe Pro Asp Asp Leu Gln Cys Val Asp 165 170 175

Leu Lys Ile Leu Pro Asn Asp Glu Cys Glu Lys Ala His Val Gln Lys 180 185 190

Val Thr Asp Phe Met Leu Cys Val Gly His Leu Glu Gly Gly Lys Asp 195 200 205

Thr Cys Val Gly Asp Ser Gly Gly Pro Leu Met Cys Asp Gly Val Leu 210 215 220 ·

Gln Gly Val Thr Ser Trp Gly Tyr Val Pro Cys Gly Thr Pro Asn Lys 225 230 235 240

## Pro Ser Val Ala Val Arg Val Leu Ser Tyr Val Lys Trp Ile Glu Asp 245 250 255

Thr Ile Ala Glu Asn Ser 260

| <21<br><21<br><21<br><21 | 1><br>2>          | 35<br>871<br>DNA<br>homo | sap              | iens             |                  |                   |                   |                  |                  |                  |                   |                   |                   |                  |                  |     |
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| <40                      |                   | 35<br>cct (              | gctg             | gccc             | ct g             | gaca              | cctc              | t gt             | cacc             |                  |                   |                   |                   |                  | ctg<br>Leu       | 54  |
| tgc<br>Cys               | ctc<br>Leu        | gcc<br>Ala               | ctg<br>Leu<br>10 | tcc<br>Ser       | ctg<br>Leu       | Gly               | ggg<br>Gly        | act<br>Thr<br>15 | ggt<br>Gly       | gct<br>Ala       | gcg<br>Ala        | ccc<br>Pro        | ccg<br>Pro<br>20  | att<br>Ile       | cag<br>Gln       | 102 |
| tcc<br>Ser               | cgg<br>Arg        | att<br>Ile<br>25         | gtg<br>Val       | gga<br>Gly       | ggc<br>Gly       | tgg<br>Trp        | gag<br>Glu<br>30  | tgt<br>Cys       | gag<br>Glu       | cag<br>Gln       | cat<br>His        | tcc<br>Ser<br>35  | cag<br>Gln        | ccc<br>Pro       | tgg<br>Trp       | 150 |
| cag<br>Gln               | gcg<br>Ala<br>40  | gct<br>Ala               | ctg<br>Leu       | tac<br>Tyr       | cat<br>His       | ttc<br>Phe<br>45  | agc<br>Ser        | act<br>Thr       | ttc<br>Phe       | cag<br>Gln       | tgt<br>Cys<br>50  | ggg               | ggc               | atc<br>Ile       | ctg<br>Leu       | 198 |
| gtg<br>Val<br>55         | cac<br>His        | cgc<br>Arg               | cag<br>Gln       | tgg<br>Trp       | gtg<br>Val<br>60 | ctc<br>Leu        | aca<br>Thr        | gct<br>Ala       | gct<br>Ala       | cat<br>His<br>65 | tgc<br>Cys        | atc<br>Ile        | agc<br>Ser        | gac<br>Asp       | aat<br>Asn<br>70 | 246 |
| tac<br>Tyr               | cag<br>Gln        | ctc<br>Leu               | tgg<br>Trp       | ctg<br>Leu<br>75 | ggt<br>Gly       | cgc<br>Arg        | cac<br>His        | aac<br>Asn       | ttg<br>Leu<br>80 | ttt<br>Phe       | gac<br>Asp        | gac<br>Asp        | gaa<br>Glu        | aac<br>Asn<br>85 | aca<br>Thr       | 294 |
| gcc<br>Ala               | cag<br>Gln        | ttt<br>Phe               | gtt<br>Val<br>90 | cat<br>His       | gtc<br>Val       | agt<br>Ser        | gag<br>Glu        | agc<br>Ser<br>95 | ttc<br>Phe       | cca<br>Pro       | cac<br>His        | cct<br>Pro        | ggc<br>Gly<br>100 | ttc<br>Phe       | aac<br>Asn       | 342 |
| atg<br>Met               | agc<br>Ser        | ctc<br>Leu<br>105        | ctg<br>Leu       | gag<br>Glu       | aac<br>Asn       | cac<br>His        | acc<br>Thr<br>110 | cgc<br>Arg       | caa<br>Gln       | gca<br>Ala       | gac<br>Asp        | gag<br>Glu<br>115 | gac<br>Asp        | tac<br>Tyr       | agc<br>Ser       | 390 |
| cac<br>His               | gac<br>Asp<br>120 | ctc<br>Leu               | atg<br>Met       | ctg<br>Leu       | ctc<br>Leu       | cgc<br>Arg<br>125 | ctg<br>Leu        | aca<br>Thr       | gag<br>Glu       | cct<br>Pro       | gct<br>Ala<br>130 | gat<br>Asp        | acc<br>Thr        | atc<br>Ile       | aca<br>Thr       | 438 |
| gat<br>Asp               | gct<br>Ala        | gtg<br>Val               | aag<br>Lys       | gtc<br>Val       | gtg<br>Val       | gag<br>Glu        | ttg<br>Leu        | ccc<br>Pro       | acc<br>Thr       | cag<br>Gln       | gaa<br>Glu        | ccc<br>Pro        | gaa<br>Glu        | gtg<br>Val       | Gly<br>aaa       | 486 |

| 135  | 140  | 145  | 150               |
|--|--|--|-------------------|
|  | Ser Gly Trp Gly  | agc atc gaa cca gag aat<br>Ser Ile Glu Pro Glu Asn<br>160 165                                |                   |
|  |  | gac ctc aaa atc ctg cct<br>Asp Leu Lys Ile Leu Pro<br>180                                    |                   |
|  |  | aag gtg aca gac ttc atg<br>Lys Val Thr Asp Phe Met<br>195                                    |                   |
|  |  | gac acc tgt gtg ggt gat<br>Asp Thr Cys Val Gly Asp<br>210                                    |                   |
|  |  | ctc caa ggt gtc aca tca<br>Leu Gln Gly Val Thr Ser<br>225                                    |                   |
|  | Gly Thr Pro Asn  | aag cct tct gtc gcc gtc<br>Lys Pro Ser Val Ala Val<br>240 245                                |                   |
| Val Leu Ser Tyr Val  |  | gac acc ata gcg gag aac<br>Asp Thr Ile Ala Glu Asn   |                   |
| 250  | 255  | 260  |                   |
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| tgaacgccca gccctgtc <pre></pre>  | ccc ctacccccag taa<br>Leu Cys Leu Ala<br>e Gln Ser Arg Ile<br>25                           | Leu Ser Leu Gly Gly Thr<br>10 15   | Gly               |
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65 70 75 80

Phe Asp Asp Glu Asn Thr Ala Gln Phe Val His Val Ser Glu Ser Phe 85 90 95

Pro His Pro Gly Phe Asn Met Ser Leu Leu Glu Asn His Thr Arg Gln 100 105 110

Ala Asp Glu Asp Tyr Ser His Asp Leu Met Leu Leu Arg Leu Thr Glu 115 120 125

Pro Ala Asp Thr Ile Thr Asp Ala Val Lys Val Val Glu Leu Pro Thr 130 135 140

Gln Glu Pro Glu Val Gly Ser Thr Cys Leu Ala Ser Gly Trp Gly Ser 145 150 155 160

Ile Glu Pro Glu Asn Phe Ser Phe Pro Asp Asp Leu Gln Cys Val Asp 165 170 175

Leu Lys Ile Leu Pro Asn Asp Glu Cys Lys Lys Ala His Val Gln Lys 180 185 190

Val Thr Asp Phe Met Leu Cys Val Gly His Leu Glu Gly Gly Lys Asp 195 200 205

Thr Cys Val Gly Asp Ser Gly Gly Pro Leu Met Cys Asp Gly Val Leu 210 215 220

Gln Gly Val Thr Ser Trp Gly Tyr Val Pro Cys Gly Thr Pro Asn Lys 225 230 235 240

Pro Ser Val Ala Val Arg Val Leu Ser Tyr Val Lys Trp Ile Glu Asp 245 250 255

Thr Ile Ala Glu Asn Ser 260

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<211> 19

<212> DNA

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<400> 37

|   | gctgtctccc gagcatgt                                     | g   | 19 |
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|   | <400> 38  |     |    |
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|   | <400> 39  |     |    |
|   | ctcaccaccc tcccccaa                                     | g   | 19 |
| The state was the state | <210> 40<br><211> 19<br><212> DNA<br><213> homo sapiens |     |    |
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| And then these them 10.   | <210> 41<br><211> 19<br><212> DNA<br><213> homo sapiens |     |    |
|   | <400> 41 cgggccccag ccctcact                            | C . | 19 |
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|   | <210> 43<br><211> 19<br><212> DNA                       |     |    |
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|     | J                       |                |  |  |
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| shirak, pirrak, shirak, girana, pirrak, girana<br>ili b. d. (k. 11 th. d. krim, b. 11 th. krim,<br>ili b. d. (k. 11 th. krim, b. 11 th. krim, b | <400>          | 135             |  |
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| :: <b>k</b><br>11  |   |     |
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| Harris Harris                          | gaageeeagg ceeeagagg            | gt cctcccacca | aggcctccca | C | 41 |
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| est.                                   | <211> 41                        |               |            |   |    |
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| 11 11 11 11 11 11 11 11 11 11 11 11 11 | <213> homo sapiens              |               |            |   |    |
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| Cj   | <400>         | 179             |            |            |   |    |
| E'f  |               |                 | ++aa+++a+a | ~~~~~~     | - | 41 |
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| ļu ķ   | <b>\Z13</b> / | nomo saprens    |            |            |   |    |
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| tion that the first that the first the   | aaataa        | ataa taaaagccag | agccaatctg | gtgtgtgcca | g | 41 |
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|             |                  | ganga aggacougg coccaggaac acagggceee e | 41 |
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|             | <210>            | 186                                     |    |
| LI]         | <211>            |   |    |
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| iii<br> a=a | aattta           | tgtc tttgtgggcc ggctcttcag gaccaaggtc t | 41 |
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| in i        | <210>            | 187                                     |    |
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|             | <400>            | 189                                     |    |
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|  |          |                |            |            |   |      |
|  |          | 191            |            |            |   |      |
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| nsig<br>ns: e  | <211>    | 41             |            |            |   |      |
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| us <b>į</b><br>usį   |          | ggc tgaggtcatg | ttccccctct | gagactcagt | + | 41   |
| 4-2  |          | ggo oguggcoucg |            | gagacccagc |   | A.T. |
|  |          |                |            |            |   |      |
|  |          | 194            |            |            |   |      |
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|  |          | 195<br>41      |            |            |   |      |
|  |          | 4.1<br>ONA     |            |            |   |      |
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| <210><br><211><br><212> | 196<br>41<br>DNA                        |    |
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| <211>                   | 41                                      |    |
| <212>                   |   |    |
|                         | homo sapiens                            |    |
| <400>                   |   |    |
| geeetg                  | gagg gagcaggggg gttgtgggac acagacttgg a | 41 |
| <210>                   | 198                                     |    |
| <211>                   | 41                                      |    |
| <212>                   |   |    |
| <213>                   | homo sapiens                            |    |
| <400>                   | 198                                     |    |
| gggaac                  | tgag gcagggacag atggttgtgc aatagttatt g | 41 |
| <210>                   | 199                                     |    |
| <211>                   |   |    |
| <212>                   | DNA                                     |    |
| <213>                   | homo sapiens                            |    |
| <400>                   | 199                                     |    |
| tcccagt                 | ttac gtctgcgtaa tgatgcctca catgtacgta g | 41 |
| -2105                   | 200                                     |    |
| <210><br><211>          | 200<br>41                               |    |
| <212>                   | DNA                                     |    |
| <213>                   | homo sapiens                            |    |
| <400>                   | 200                                     |    |
| tgacago                 | gtgg aagggageca atgageaeet aetgtgtgee a | 41 |
| <210>                   | 201                                     |    |
| <211>                   | 41                                      |    |
| <212>                   | DNA                                     |    |
| <213>                   | homo sapiens                            |    |
| <400>                   | 201                                     |    |
| ataacag                 | gctc attgagtctt tcacaggaca gatgttcttt a | 41 |
| <210>                   | 202                                     |    |
| <211>                   | 41                                      |    |
| <212>                   |   |    |

|              | <213>   | nomo sapiens        |           |            |   |     |
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|              | <400>   | 202                 |           |            |   |     |
|              |         | tgag tctttcacag g   | acadatott | ctttatcacc | a | 41  |
|              | 300000  | ogag coccocacag g   | acagacgcc | cccaccagg  | 9 | 4 T |
|              |         |                     |           |            |   |     |
|              | <210>   | 203                 |           |            |   |     |
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|              |         | gtct cagaccatca c   | gtgctctgg | tgctgaatga | С | 41  |
|              |         |                     |           |            |   |     |
|              | <210>   | 204                 |           |            |   |     |
|              | <211>   |                     |           |            |   |     |
|              | <212>   |                     |           |            |   |     |
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|              |         |                     |           |            |   |     |
| ii-i         | <400>   | 204                 |           |            |   |     |
| in a         | gccgat  | ggtg aacaccattg c   | cattccttt | tcacactctt | С | 41  |
|              |         |                     |           |            |   |     |
| li.          | <210>   | 205                 |           |            |   |     |
|              | <211>   |                     |           |            |   |     |
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| ÇI1          |         | _                   |           |            |   |     |
| Æ            | <400>   | 205                 |           |            |   |     |
| ļ::k         | tatgga  | gaca gactaggcaa g   | ttttgttta | ataaatgagt | g | 41  |
|              |         |                     |           |            |   |     |
|              | <210>   | 206                 |           |            |   |     |
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| ļ.: <u>Ļ</u> | <213>   | homo sapiens        |           |            |   |     |
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|              | tgagcg  | atga gccccaggtt c   | ctggcatgg | atggatggat | g | 41  |
|              |         |                     |           |            |   |     |
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|              | <400>   | 207                 |           |            |   |     |
|              |         | acag cggcgatggg a   | aagaagttg | tagaacttac | а | 41  |
|              | Jogaage | a caacadraada d     | aagaageeg | eggaacttyt | u | ÷Τ  |
|              |         |                     |           |            |   |     |
|              | <210>   | 208                 |           |            |   |     |
|              | <211>   | 41<br>DNA           |           |            |   |     |
|              | <212>   | DNA<br>homo sapiens |           |            |   |     |
|              | ~4±3/   | nomo sabtems        |           |            |   |     |
|              | <400>   | 208                 |           |            |   |     |

|  | agcaggag           | ag ccaggaccca       | gatgacacag | atgaccactt | t   | 41 |
|--|--------------------|---------------------|------------|------------|-----|----|
|  | <211> 4<br><212> D | 09<br>1<br>0NA      |            |            |     |    |
|  | <213> h            | omo sapiens         |            |            |     |    |
|  | <400> 2            | 109                 |            |            |     |    |
|  | gggtgggt           | ta gttctgcctg       | teceetgete | accttgcgct | t   | 41 |
|  |                    | 10                  |            |            |     |    |
|  |                    | )NA                 |            |            |     |    |
|  | <213> h            | omo sapiens         |            |            |     |    |
|  | <400> 2            | 10                  |            |            |     |    |
| ļask<br>Mes  | cagaatgg           | aa tgaatgggct       | tttgggaaaa | gctggtccga | С   | 41 |
| jaz i  |                    |                     |            |            |     |    |
| And the first firs |                    | 11                  |            |            |     |    |
| [.]  |                    | 1                   |            |            |     |    |
|  |                    | NA<br>lomo sapiens  |            |            |     |    |
|  | \Z13> 11           | omo saprens         |            |            |     |    |
| ų.)  | <400> 2            | 11                  |            |            |     |    |
| The state of the s | cagtgatt           | tg gtttgagtca       | cacagcatga | gggtggcaaa | g   | 41 |
| (III   |                    |                     |            |            |     |    |
| #  | <210> 2            | 12                  |            |            |     |    |
| ik:↓<br> E:↓   |                    | 1                   |            |            |     |    |
| l ij   |                    | NA                  |            |            |     |    |
|  |                    | omo sapiens         |            |            |     |    |
| ###<br>###   | -100- 0            | 10                  |            |            |     |    |
| inch<br>inch   |                    | 12<br>tt ttgcaagtcc | caatataaaa | atatttatas | , · | 41 |
| •  | cegacee            | ee eegeaageee       | cagcgcgagg | gegeeeega  |     | 41 |
|  | -210- 2            | 17                  |            |            |     |    |
|  |                    | 13<br>1             |            |            |     |    |
|  | _                  | NA                  |            |            |     |    |
|  |                    | omo sapiens         |            |            |     |    |
|  | <400> 2            | 13                  |            |            |     |    |
|  |                    | ca ggtccaggga       | cgagggtgtg | accttagaac | С   | 41 |
|  |                    | 22 223              | 3 223-3-3  | 2 2233     |     |    |
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|  | <212> D            |                     |            |            |     |    |
|  | <213> h            | omo sapiens         |            |            |     |    |
|  | <400> 2            | 14                  |            |            |     |    |
|  |                    | aa agaaaggaca       | gagggaatgt | tggagctaca | g   | 41 |

|   | <210>          | 215                                     |            |
|---|----------------|---|------------|
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|   | . 4.0.0        | 045                                     |            |
|   | <400>          | 215                                     |            |
|   | gcggta         | ggaa gactgttaag atgcatctct tattttctag g | 41         |
|   |                |   |            |
|   | <210>          | 216                                     |            |
|   | <211>          | 41                                      |            |
|   | <212>          | DNA                                     |            |
|   | <213>          | homo sapiens                            |            |
|   |                |   |            |
|   | <400>          | 216                                     |            |
|   | cgcatca        | aaag tgacgaccag ccaggatatg ctctcaatca t | 41         |
|   |                |   |            |
|   |                |   |            |
|   |                | 217                                     |            |
|   | <211>          | 41                                      |            |
| us is   | <212>          | DNA                                     |            |
| -1  | <213>          | homo sapiens                            |            |
| Aller States States States States States States | <400>          | 217                                     |            |
|   |                |   |            |
| 1   | cacccc         | caag atgctattcg ttgaacccat cctggaggtt t | 41         |
| Ť   |                |   |            |
| 14  | <210>          | 218                                     |            |
| : 1<br>76                                       | <211>          | 41                                      |            |
| ,   | <212>          | DNA                                     |            |
| :   | <213>          | homo sapiens                            |            |
| = <b>:</b><br>!                                 |                |   |            |
|   | <400>          | 218                                     |            |
| diese man                                       | gctctac        | ccac gccttctcag caatgaagaa ggtggagacc a | 41         |
|   |                |   |            |
| ;<br>;  | -210-          | 210                                     |            |
| Ė   | <210><br><211> | 219<br>41                               |            |
|   |                | DNA                                     |            |
|   |                | homo sapiens                            |            |
|   | -440/          | MOMO DUDITOR                            |            |
|   | <400>          | 219                                     |            |
|   |                | agcc cttcctcttc gtgctctggg accagcagca c | 41         |
|   |                |   | <b>-</b> 1 |
|   |                |   |            |
|   |                | 220                                     |            |
|   |                | 41                                      |            |
|   |                | DNA                                     |            |
|   | <213>          | homo sapiens                            |            |
|   | - 400          | 220                                     |            |
|   |                | 220                                     |            |
|   | teetgee        | taa tgatgagtgc aaaaaagccc acgtccagaa g  | 41         |
|   |                |   |            |
|   | <210>          | 221                                     |            |
|   |                | 41                                      |            |
|   | <212>          |   |            |

|  | <b>\</b> 213/  | nomo sapiens        |          |            |     |     |
|--|----------------|---------------------|----------|------------|-----|-----|
|  | <400>          | 221                 |          |            |     |     |
|  |                | gtgt agcccaaggc ggg | raataaaa | actcctgcgt | С   | 41  |
|  | -              | 3 3 3 33 333        | ,55555   |            | _   |     |
|  |                |                     |          |            |     |     |
|  | <210>          | 222                 |          |            |     |     |
|  | <211>          |                     |          |            |     |     |
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|  | \213/          | nomo sapiens        |          |            |     |     |
|  | <400>          | 222                 |          |            |     |     |
|  |                | tgga gttgcccacc gag | gaacccg  | aagtggggag | С   | 41  |
|  |                |                     |          |            |     |     |
|  | .010-          | 000                 |          |            |     |     |
|  | <210>          | 223                 |          |            |     |     |
|  | <211><br><212> |                     |          |            |     |     |
|  |                | homo sapiens        |          |            |     |     |
|  | 18137          | nome suprems        |          |            |     |     |
|  | <400>          | 223                 |          |            |     |     |
| C.1  | ggcggg         | gatg gggactcctg cgt | ccaaggg  | agaaagggcc | a   | 41  |
| The first of the state of the s |                |                     |          |            |     |     |
| E.)  | <210>          | 224                 |          |            |     |     |
| L/J  | <211>          |                     |          |            |     |     |
| ų.į  | <212>          |                     |          |            |     |     |
|  |                | homo sapiens        |          |            |     |     |
|  |                | _                   |          |            |     |     |
| <b>#</b>   | <400>          | 224                 |          |            |     |     |
|  | gggcca         | cccc agctgtgtca atc | tcatgcc  | tggaagtctg | a   | 41  |
| 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1  |                |                     |          |            |     |     |
|  | <210>          | 225                 |          |            |     |     |
|  | <211>          |                     |          |            |     |     |
|  | <212>          | DNA                 |          |            |     |     |
| ļze k  | <213>          | homo sapiens        |          |            |     |     |
|  | . 4.0.0.       | 225                 |          |            |     |     |
|  |                | 225                 | abbbasa  | ~~+~+      | _   | 4 1 |
|  | tyttat         | gttc tgccatcacc tat | ettteea  | gatgtggtge | a . | 41  |
|  |                |                     |          |            |     |     |
|  | <210>          | 226                 |          |            |     |     |
|  | <211>          | 41                  |          |            |     |     |
|  | <212>          |                     |          |            |     |     |
|  | <213>          | homo sapiens        |          |            |     |     |
|  | <400>          | 226                 |          |            |     |     |
|  |                | agcc tgctgtctcc gga | acatata  | agtgecete  | a   | 41  |
|  | J J-0.         | 5 -55 994           | 2203     |            | -   |     |
|  |                |                     |          |            |     |     |
|  | <210>          | 227                 |          |            |     |     |
|  | <211>          |                     |          |            |     |     |
|  | <212><br><213> |                     |          |            |     |     |
|  | ~~±J/          | nomo saprens        |          |            |     |     |
|  | <400>          | 227                 |          |            |     |     |

|   | greteetitg cagaacagte tagtgttaca etgagtecag t            | 41  |
|---|--|-----|
|   | <210> 228<br><211> 41<br><212> DNA<br><213> homo sapiens |     |
|   | (213) Homo Sapiens                                       |     |
|   | <400> 228  |     |
|   | ccagatttcc cctcaccacc ctcccccaag ggggcaccca a            | 41  |
|   | <210> 229  |     |
|   | <211> 41   |     |
|   | <212> DNA<br><213> homo sapiens                          |     |
|   | -  |     |
|   | <400> 229  |     |
|   | ggccactgac aaggcctcag tccaagctga gcctcatcct a            | 41  |
|   |  |     |
| 4.)                                     | <210> 230<br><211> 41                                    |     |
| 121<br>122                              | <211> 41<br><212> DNA                                    |     |
|   | <213> homo sapiens                                       |     |
| H. I                                    | <400> 230  |     |
| <b>[.</b> 7]                            | agaaagggtt ggagtgaggg ctggggcccg agtctctttt t            | 41  |
| ĽI.                                     |  | # T |
| E<br>L                                  | <210> 231  |     |
|   | <211> 41   |     |
|   | <212> DNA  |     |
| 100 100 100 100 100 100 100 100 100 100 | <213> homo sapiens                                       |     |
| 4.1                                     | <400> 231  |     |
| d: F                                    | agcactcccc aggccacccc tettttatta taccetetat g            | 41  |
|   |  |     |
|   | <210> 232  |     |
|   | <211> 41   |     |
|   | <212> DNA<br><213> homo sapiens                          |     |
|   | 1210 Nomo Baptens  |     |
|   | <400> 232  |     |
|   | tttgtttgag gaaagggttt tgctgctttt taagaggatg c            | 41  |
|   | <210> 233  |     |
|   | <211> 41   |     |
|   | <212> DNA  |     |
|   | <213> homo sapiens                                       |     |
|   | <400> 233  |     |
|   | cctgccagtc ctctgaaaac gcccctgtgc catggagacc t            | 41  |

|  | <210>          | 234                                      |     |
|--|----------------|--|-----|
|  | <211>          | 41                                       |     |
|  | <212>          |  |     |
|  | <213>          | homo sapiens                             |     |
|  | <400>          | 234                                      |     |
|  | tagaga         | agcat tgccacgaaa cggtggcaaa tctcacgtct g | 41  |
|  |                |  |     |
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|  | <211>          |  |     |
|  | <212>          |  |     |
|  | <213>          | homo sapiens                             |     |
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|  | ttgcaa         | acct tagcatgcac gtgagtcacc tgggatgctt g  | 41  |
|  |                |  |     |
|  | <210>          |  |     |
|  | <211>          |  |     |
| es E   | <212>          |  |     |
| ===  | <213>          | homo sapiens                             |     |
| tern in 'n | <400>          | 236                                      |     |
| : #<br>: #                                     | gaagcc         | cagg ccccagaggt tctcccacca aggcctccca c  | 41  |
| / <b>1</b><br>/ <b>1</b>                       |                |  |     |
| :#<br>[[                                       | <210>          | 237                                      | •   |
|  | <211>          |  |     |
|  |                | DNA                                      |     |
| : È  |                | homo sapiens                             |     |
|  | <400>          | 237                                      |     |
| 1  |                |  | 4.1 |
|  | aggeee         | caga ggtcctccca tcaaggcctc ccacgtgacc c  | 41  |
| 1  | -010           |  |     |
| Ė  |                | 238<br>41                                |     |
|  |                | DNA                                      |     |
|  |                | homo sapiens                             |     |
|  | <b>\Z13</b> /  | nomo sapiens                             |     |
|  | <400>          | 238                                      |     |
|  | ggcctc         | ccac gtgacccagt acagggttag gctgcccttc t  | 41  |
|  |                |  |     |
|  | <210>          | 239                                      |     |
|  | <211>          | 41                                       |     |
|  | <212>          | DNA                                      |     |
|  | <213>          | homo sapiens                             |     |
|  | <400>          | 239                                      |     |
|  |                | gcct gaaggaagag cccggggaaa gagccctccc t  | 11  |
|  | JJ=349;        | Jeel Jeelssaasas coossssaaa sascooteee t | 41  |
|  | -210-          | 240                                      |     |
|  | <210><br><211> | 240<br>41                                |     |
|  | <211>          |  |     |

|  | <213> | nomo sapiens    |   |            |   |    |
|--|-------|-----------------|---|------------|---|----|
|  | <400> | 240             |   |            |   |    |
|  |       | tgtc tgctcgagcc | taggaaaggc                              | ctgaaggaag | a | 41 |
|  |       |                 |   |            |   |    |
|  | <210> | 241             |   |            |   |    |
|  | <211> |                 |   |            |   |    |
|  | <212> |                 |   |            |   |    |
|  | <213> | homo sapiens    |   |            |   |    |
|  | <400> | 0.41            |   |            |   |    |
|  |       | tcag gcagatcagc | gttaaatatt                              | ccttqtcaat | ÷ | 41 |
|  | 3     |                 | 500000000000000000000000000000000000000 |            |   |    |
|  | <210> | 242             |   |            |   |    |
|  | <211> |                 |   |            |   |    |
|  | <212> |                 |   |            |   |    |
|  | <213> | homo sapiens    |   |            | · |    |
| ļķe i  | <400> | 242             |   |            |   |    |
| e:<br>E:j  |       | acca tgtttatgtc | gtcctttcta                              | gggccagtgg | a | 41 |
| ###<br>###   |       | 5 5             |   |            |   |    |
| F: 4   | <210> | 243             |   |            |   |    |
|  | <211> |                 |   |            |   |    |
| 4.   | <212> |                 |   |            |   |    |
|  | <213> | homo sapiens    |   |            |   |    |
| Ç1   | <400> | 243             |   |            |   |    |
| is<br>Jack   |       | ataa taaaagccag | cgccaatctg                              | gtgtgtgcca | q | 41 |
| rij.   |       |                 |   |            |   |    |
| The state of the s | <210> | 244             |   |            |   |    |
| 14   | <211> |                 |   |            |   |    |
| ## <b>}</b>  | <212> |                 |   | •          |   |    |
| -= <u> </u>  | <213> | homo sapiens    |   |            |   |    |
|  | <400> | 244             |   | -          |   |    |
|  |       | ggc tectectece  | atcctccata                              | tcacctcttc | С | 41 |
|  |       |                 |   |            |   |    |
|  | <210> | 245             |   |            |   |    |
|  | <211> | 41              |   |            |   |    |
|  | <212> |                 |   |            |   |    |
|  | <213> | homo sapiens    |   |            |   |    |
|  | <400> | 245             |   |            |   |    |
|  |       | ggc agcttggctt  | ggagaggctg                              | tcaccccttc | t | 41 |
|  |       |                 |   |            |   |    |
|  | <210> | 246             |   |            |   |    |
|  | <211> |                 |   |            |   |    |
|  | <212> | DNA             |   |            |   |    |
|  | <213> | homo sapiens    |   |            |   |    |
|  | <400> | 246             |   |            |   |    |

|  | cctatggaga a                                     | iggreecagg  | acccaggaac | acagggcttc | τ | 41 |
|--|--|---|------------|------------|---|----|
|  | <210> 247<br><211> 41<br><212> DNA<br><213> homo | sapiens   |            |            |   |    |
|  |  |   |            |            |   |    |
|  | <400> 247<br>ccggggttgt a                        | taccacacc   | gtgggcccct | aatcccaggc | С | 41 |
|  | 010 040  |   |            | ,          |   |    |
|  | <210> 248 <211> 41                               |   |            |            |   |    |
|  | <212> DNA  |   |            |            |   |    |
|  | <213> homo                                       | sapiens   |            |            |   |    |
|  | <400> 248  |   |            |            |   |    |
| 10 mars 11 mar | cagatgagcc a                                     | gcattccag   | ttctttcacc | cttcagcaac | a | 41 |
| K.,  |  |   |            |            |   |    |
| f'i  | <210> 249  |   |            |            |   |    |
|  | <211> 41   |   |            |            |   |    |
|  | <212> DNA<br><213> homo                          | sapiens   |            |            |   |    |
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| 4.1  | <400> 249  | . 6- 6- 4- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- |            |            |   |    |
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| #  | 010 050  |   |            |            |   |    |
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| F.,  | <400> 250  |   |            |            |   |    |
| ļu = j   | ctgctgcaca g                                     | agtgctgcc   | aacatttatc | atctccatct | g | 41 |
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|  | -saageeegg C                                     | coccato   | gaccectyt  | gacacadtad | u | 41 |
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|  | tgttgttgtt g                                     | agacagggt   | ttcagtccgt | cggcccagac | t | 41 |

|                                | <b>\Z1J</b> /  | nome saprens             |            |            |          |     |
|--------------------------------|----------------|--------------------------|------------|------------|----------|-----|
|                                | <400>          | 259                      |            |            |          |     |
|                                |                | agg gcccgaagac a         | acagcacagt | tttttctcca | g        | 41  |
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|                                | 04.0           | 0.60                     |            |            |          |     |
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|                                |                | homo sapiens             |            |            |          |     |
|                                | 1225           | nome baprone             |            |            |          |     |
|                                | <400>          | 260                      |            |            | •        |     |
|                                | gccctgg        | gagg gagcaggggg (        | cttgtgggac | acagacttgg | a        | 41  |
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| :[                             | gggaact        | gay gcagggacag           | gragerate  | aacagccacc | 9        |     |
| urid Thile crift Three And The |                |                          |            |            |          |     |
| -                              | <210>          | 262                      |            |            |          |     |
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|                                |                | tac gtctgcgtaa           | agatgcctca | catgtacgta | g        | 41  |
| = <u>‡</u><br>: €              |                |                          |            |            |          |     |
| World Teach Bride Street       |                |                          |            |            |          |     |
| sē<br>sē                       | <210>          | 263                      |            |            |          |     |
| 4.8<br>=q                      | <211><br><212> | 41<br>DNA                |            |            |          |     |
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|                                | <400>          | 263                      |            |            |          | 4.1 |
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|                                | <213>          | homo sapiens             | •          |            |          |     |
|                                | -400           | 264                      |            |            |          |     |
|                                | <400>          | 264<br>gctc attgagtctt   | acacacaca  | gatgttcttt | a        | 41  |
|                                | acaaca         | gete attgageett          | gcacaggaca | gacgeceee  | ~        |     |
|                                |                |                          |            |            |          |     |
|                                | <210>          | 265                      |            |            |          |     |
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|                                | <400>          | 265                      |            |            |          |     |
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| The sense when the sense went was the sense was | <210><211><212><213>      | 268<br>41<br>DNA<br>homo sapiens |            |            |   |    |
|   | <400><br>tatggag          | 268<br>gaca gactaggcaa           | attttgttta | ataaatgagt | g | 41 |
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|   | <210><211><212><212><213> | 270<br>41<br>DNA<br>homo sapiens |            |            |   |    |
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| je s k       |        | accac gccttctcag gaatgaagaa ggtggagacc a | 41 |
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| Hart<br>Last | <210>  | 282                                      |    |
| L.I          | <211>  |  |    |
| L.)          | <212>  | DNA                                      |    |
| <u>.</u>     | <213>  | homo sapiens                             |    |
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| ¥1<br>43   | <400>                     | 287  |    |
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|  | <220>                     |  |    |
|  |                           | misc_feature (120)                             |    |
|  |                           | (129)(129) wherein N is either a "T" or a "C". |    |
|  |                           |  |    |

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|-------------------------------------|--------------------------|------------|---------------------------|------------|-------------|-----------|------------|------------|------------|-----------|-----------|------------|------------|------------|-----------|-----------|--------|---|
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|                                     | <22<br><22<br><22<br><22 | 1><br>2>   | VARI<br>(241<br>wher      | ) (        |             | is e      | ithe       | r "A       | rg"        | or "      | Asn"      |            |            |            |           |           |        |   |
| dank, njeka projet projet poda, pod | <22<br><22<br><22<br><22 | 1><br>2>   | VARI<br>(191<br>wher      | ) (        |             | is e      | ithe       | r "L       | eu"        | or "      | Val"      |            |            |            |           |           |        |   |
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|                                     | Met<br>1                 | Ala        | Ser                       | Ser        | Trp<br>5    | Pro       | Pro        | Leu        | Glu        | Leu<br>10 | Gln       | Ser        | Ser        | Asn        | Gln<br>15 | Ser       |        |   |
| Andr Hens                           | Gln                      | Leu        | Phe                       | Pro<br>20  | Gln         | Asn       | Ala        | Thr        | Ala<br>25  | Cys       | Asp       | Asn        | Ala        | Pro<br>30  | Glu       | Ala       |        |   |
| Ė                                   | Trp                      | Asp        | Leu<br>35                 | Leu        | His         | Arg       | Val        | Leu<br>40  | Pro        | Thr       | Phe       | Ile        | Ile<br>45  | Ser        | Ile       | Cys       |        |   |
|                                     | Phe                      | Phe<br>50  | Gly                       | Leu        | Leu         | Gly       | Asn<br>55  | Leu        | Phe        | Val       | Leu       | Leu<br>60  | Val        | Phe        | Leu       | Leu       |        |   |
|                                     | Pro<br>65                | Arg        | Arg                       | Gln        | Leu         | Asn<br>70 | Val        | Ala        | Glu        | Ile       | Туr<br>75 | Leu        | Ala        | Asn        | Leu       | Ala<br>80 |        |   |
|                                     | Ala                      | Ser        | Asp                       | Leu        | Val<br>85   | Phe       | Val        | Leu        | Gly        | Leu<br>90 | Pro       | Phe        | Trp        | Ala        | Glu<br>95 | Asn       |        |   |
|                                     | Ile                      | Trp        | Asn                       | Gln<br>100 | Phe         | Asn       | Trp        | Pro        | Phe<br>105 | Gly       | Ala       | Leu        | Leu        | Cys<br>110 | Arg       | Val       |        |   |
|                                     | Ile                      | Asn        | Gly<br>115                | Val        | Ile         | Lys       | Ala        | Asn<br>120 | Leu        | Phe       | Ile       | Ser        | Ile<br>125 | Phe        | Leu       | Val       |        |   |
|                                     | Val                      | Ala<br>130 | Ile                       | Ser        | Gln         | Asp       | Arg<br>135 | Tyr        | Arg        | Val       | Leu       | Val<br>140 | His        | Pro        | Met       | Ala       |        |   |

Ser Gly Arg Gln Gln Arg Arg Gln Ala Arg Val Thr Cys Val Leu 150 Ile Trp Val Val Gly Gly Leu Leu Ser Ile Pro Thr Phe Leu Leu Arg 170 Ser Ile Gln Ala Val Pro Asp Leu Asn Ile Thr Ala Cys Ile Xaa Leu Leu Pro His Glu Ala Trp His Phe Ala Arg Ile Val Glu Leu Asn Ile Leu Gly Phe Leu Leu Pro Leu Ala Ala Ile Val Phe Phe Asn Tyr His Ile Leu Ala Ser Leu Arg Thr Arg Glu Glu Val Ser Arg Thr Arg Val 235 Xaa Gly Pro Lys Asp Ser Lys Thr Thr Ala Leu Ile Leu Thr Leu Val 250 Val Ala Phe Leu Val Cys Trp Ala Pro Tyr His Phe Phe Ala Phe Leu 265 Glu Phe Leu Phe Gln Val Gln Ala Val Arg Gly Cys Phe Trp Glu Asp 280 Phe Ile Asp Leu Gly Leu Gln Leu Ala Asn Phe Phe Ala Phe Thr Asn Ser Ser Leu Asn Pro Val Ile Tyr Val Phe Val Gly Xaa Leu Phe Arg 315 Thr Lys Val Trp Glu Leu Tyr Lys Gln Cys Thr Pro Lys Ser Leu Ala Pro Ile Ser Ser His Arg Lys Glu Ile Phe Gln Leu Phe Trp Arg 345 Asn

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  <222> (543)..(543)
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| agaaggaccc tgagccccag gcgccagcca caggactctg ctgcagaggg gggttgtgta   | 180 |
| cagatagtag gctttacgcc tagcttcgaa atg gat aac gtc ctc ccg gtg gac<br>Met Asp Asn Val Leu Pro Val Asp<br>1 5  | 234 |
| tca gac ctc tcc cca aac atc tcc act aac acc tcg gaa ccc aat cag<br>Ser Asp Leu Ser Pro Asn Ile Ser Thr Asn Thr Ser Glu Pro Asn Gln<br>10 15 20        | 282 |
| ttc gtg caa cca gcc tgg caa att gtc ctt tgg gca gct gcc tac acg<br>Phe Val Gln Pro Ala Trp Gln Ile Val Leu Trp Ala Ala Ala Tyr Thr<br>25 30 35 40     | 330 |
| gtc att gtg gtg acc tct gtg gtg ggc aac gtg gta gtg atg tgg atc<br>Val Ile Val Val Thr Ser Val Val Gly Asn Val Val Val Met Trp Ile<br>45 50 55        | 378 |
| atc tta gcc cac aaa aga atg agg aca gtg acg aac tat ttt ctg gtg<br>Ile Leu Ala His Lys Arg Met Arg Thr Val Thr Asn Tyr Phe Leu Val<br>60 65 70        | 426 |
| aac ctg gcc ttc gcg gag gcc tcc atg gct gca ttc aat aca gtg gtg<br>Asn Leu Ala Phe Ala Glu Ala Ser Met Ala Ala Phe Asn Thr Val Val<br>75 80 85        | 474 |
| aac ttc acc tat gct gtc cac aac gaa tgg tac tac ggc ctg ttc tac<br>Asn Phe Thr Tyr Ala Val His Asn Glu Trp Tyr Tyr Gly Leu Phe Tyr<br>90 95 100       | 522 |
| tgc aag ttc cac aac ttc ttn ccc atc gcc gct gtc ttc gcc agt atc<br>Cys Lys Phe His Asn Phe Xaa Pro Ile Ala Ala Val Phe Ala Ser Ile<br>105 110 115 120 | 570 |
| tac tcc atg acg gct gtg gcc ttt gat agg tac atg gcc atc ata cat<br>Tyr Ser Met Thr Ala Val Ala Phe Asp Arg Tyr Met Ala Ile Ile His<br>125 130 135     | 618 |
| ccc ctc cag ccc cgg ctg tca gcc aca gcc acc aaa gtg gtc atc tgt   | 666 |

| Pro               | Leu               | Gln               | Pro<br>140        | Arg               | Leu               | Ser               | Ala               | Thr<br>145        | Ala               | Thr               | Lys               | Val               | Val<br>150        | Ile               | Cys               |      |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| gtc<br>Val        | atn<br>Xaa        | tgg<br>Trp<br>155 | gtc<br>Val        | ctg<br>Leu        | gct<br>Ala        | ctc<br>Leu        | ctg<br>Leu<br>160 | ctg<br>Leu        | gcc<br>Ala        | ttc<br>Phe        | ccc<br>Pro        | cag<br>Gln<br>165 | ggc               | tac<br>Tyr        | tac<br>Tyr        | 714  |
| tca<br>Ser        | acc<br>Thr<br>170 | aca<br>Thr        | gag<br>Glu        | acc<br>Thr        | atg<br>Met        | ccc<br>Pro<br>175 | agc<br>Ser        | aga<br>Arg        | gtc<br>Val        | gtg<br>Val        | tgc<br>Cys<br>180 | atg<br>Met        | atc<br>Ile        | gaa<br>Glu        | tgg<br>Trp        | 762  |
| cca<br>Pro<br>185 | gag<br>Glu        | cat<br>His        | ccg<br>Pro        | aac<br>Asn        | aag<br>Lys<br>190 | att<br>Ile        | tat<br>Tyr        | gag<br>Glu        | aaa<br>Lys        | gtg<br>Val<br>195 | tac<br>Tyr        | cac<br>His        | atc<br>Ile        | tgt<br>Cys        | gtg<br>Val<br>200 | 810  |
|                   |                   |                   |                   |                   | ttc<br>Phe        |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   | 858  |
| acc<br>Thr        | gta<br>Val        | gtg<br>Val        | gga<br>Gly<br>220 | atc<br>Ile        | aca<br>Thr        | cta<br>Leu        | tgg<br>Trp        | gcc<br>Ala<br>225 | agt<br>Ser        | gag<br>Glu        | atc<br>Ile        | ccc<br>Pro        | ggg<br>Gly<br>230 | gac<br>Asp        | tcc<br>Ser        | 906  |
| tct<br>Ser        | gac<br>Asp        | cgc<br>Arg<br>235 | tac<br>Tyr        | cac<br>His        | gag<br>Glu        | caa<br>Gln        | gtc<br>Val<br>240 | tct<br>Ser        | gcc<br>Ala        | aag<br>Lys        | cgc<br>Arg        | aag<br>Lys<br>245 | gtg<br>Val        | gtc<br>Val        | aaa<br>Lys        | 954  |
|                   |                   |                   |                   |                   | gtg<br>Val        |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   | 1002 |
|                   |                   |                   |                   |                   | ctg<br>Leu<br>270 |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   | 1050 |
| aag<br>Lys        | ttt<br>Phe        | atc<br>Ile        | cag<br>Gln        | cag<br>Gln<br>285 | gtc<br>Val        | tac<br>Tyr        | ctg<br>Leu        | gcc<br>Ala        | atc<br>Ile<br>290 | atg<br>Met        | tgg<br>Trp        | ctg<br>Leu        | gcc<br>Ala        | atg<br>Met<br>295 | agc<br>Ser        | 1098 |
| tcc<br>Ser        | acc<br>Thr        | atg<br>Met        | tac<br>Tyr<br>300 | aac<br>Asn        | ccc<br>Pro        | atc<br>Ile        | atc<br>Ile        | tac<br>Tyr<br>305 | tgc<br>Cys        | tgc<br>Cys        | ctc<br>Leu        | aat<br>Asn        | gac<br>Asp<br>310 | agg<br>Arg        | ttc<br>Phe        | 1146 |
| cgt<br>Arg        | ctg<br>Leu        | ggc<br>Gly<br>315 | ttc<br>Phe        | aag<br>Lys        | cat<br>His        | gcc<br>Ala        | ttc<br>Phe<br>320 | cgg<br>Arg        | tgc<br>Cys        | tgc<br>Cys        | ccc<br>Pro        | ttc<br>Phe<br>325 | atc<br>Ile        | agc<br>Ser        | gcc<br>Ala        | 1194 |
| ggc<br>Gly        | gac<br>Asp<br>330 | tat<br>Tyr        | gag<br>Glu        | Gly<br>aaa        | ctg<br>Leu        | gaa<br>Glu<br>335 | atg<br>Met        | aaa<br>Lys        | tcc<br>Ser        | acc<br>Thr        | cgg<br>Arg<br>340 | tat<br>Tyr        | ctc<br>Leu        | cag<br>Gln        | acc<br>Thr        | 1242 |
| cag<br>Gln<br>345 | ggc<br>Gly        | agt<br>Ser        | gtg<br>Val        | tac<br>Tyr        | aaa<br>Lys<br>350 | gtc<br>Val        | agc<br>Ser        | cgc<br>Arg        | ctg<br>Leu        | gag<br>Glu<br>355 | acc<br>Thr        | acc<br>Thr        | atc<br>Ile        | tcc<br>Ser        | aca<br>Thr<br>360 | 1290 |
| gtg<br>Val        | gtg<br>Val        | ggg<br>Gly        | gcc<br>Ala        | cac<br>His        | gag<br>Glu        | gag<br>Glu        | gag<br>Glu        | cca<br>Pro        | gag<br>Glu        | gac<br>Asp        | ggc<br>Gly        | ccc<br>Pro        | aag<br>Lys        | gcc<br>Ala        | aca<br>Thr        | 1338 |

| 365 370 375   |      |
|---|------|
| ccc tcn tcc ctg gac ctg acc tcc aac tgc tct tca cga agt gac tcc<br>Pro Xaa Ser Leu Asp Leu Thr Ser Asn Cys Ser Ser Arg Ser Asp Ser<br>380 385 390   | 1386 |
| aag acc atg aca gag agc ttc agc ttc tcc tcc aat gtg ctc tcc Lys Thr Met Thr Glu Ser Phe Ser Phe Ser Ser Asn Val Leu Ser 395 400 405   | 1431 |
| taggccacag ggcctttggc aggtgcagcc cccactgcct ttgacctgcc tcccttcatg   | 1491 |
| catggaaatt cccttcatct ggaaccatca gaaacaccct cacactggga cttgcaaaaa   | 1551 |
| gggtcagtat gggttaggga aaacattcca tccttgagtc aaaaaatctc aattcttccc   | 1611 |
| tatetttgee acceteatge tgtgtgaete aaaccaaate actgaacttt getgageetg   | 1671 |
| taaaataaaa ggtcggacca gcttttcctc aagagcccaa tgcattccat ttctggaagt   | 1731 |
| gactttggct gcatgcgagt gctcatttca ggatg  | 1766 |
| <pre>&lt;210&gt; 292 &lt;211&gt; 407 &lt;212&gt; PRT &lt;213&gt; homo sapiens  &lt;220&gt; &lt;221&gt; misc_feature &lt;222&gt; (543)(543) &lt;223&gt; wherein N is either a "T" or a "C".  &lt;220&gt; &lt;221&gt; misc_feature &lt;222&gt; (672)(672) &lt;223&gt; wherein N is either a "C" or an "A".  &lt;220&gt; &lt;221&gt; misc_feature &lt;222&gt; (1344)(1344) &lt;223&gt; wherein N is either a "G" or an "A". </pre> |      |
| Met Asp Asn Val Leu Pro Val Asp Ser Asp Leu Ser Pro Asn Ile Ser   |      |
| 1 5 10 15   |      |
| Thr Asn Thr Ser Glu Pro Asn Gln Phe Val Gln Pro Ala Trp Gln Ile 20 25 30  |      |

Val Leu Trp Ala Ala Ala Tyr Thr Val Ile Val Val Thr Ser Val Val

Gly Asn Val Val Val Met Trp Ile Ile Leu Ala His Lys Arg Met Arg 50 55 60

Thr Val Thr Asn Tyr Phe Leu Val Asn Leu Ala Phe Ala Glu Ala Ser 65 70 75 80

Met Ala Ala Phe Asn Thr Val Val Asn Phe Thr Tyr Ala Val His Asn 85 90 95

Glu Trp Tyr Tyr Gly Leu Phe Tyr Cys Lys Phe His Asn Phe Xaa Pro 100 105 110

Ile Ala Ala Val Phe Ala Ser Ile Tyr Ser Met Thr Ala Val Ala Phe 115 120 125

Asp Arg Tyr Met Ala Ile Ile His Pro Leu Gln Pro Arg Leu Ser Ala 130 135 140

Thr Ala Thr Lys Val Val Ile Cys Val Xaa Trp Val Leu Ala Leu Leu 145 150 155 160

Leu Ala Phe Pro Gln Gly Tyr Tyr Ser Thr Thr Glu Thr Met Pro Ser 165 170 175

Arg Val Val Cys Met Ile Glu Trp Pro Glu His Pro Asn Lys Ile Tyr 180 185 190

Glu Lys Val Tyr His Ile Cys Val Thr Val Leu Ile Tyr Phe Leu Pro 195 200 205

Leu Leu Val Ile Gly Tyr Ala Tyr Thr Val Val Gly Ile Thr Leu Trp 210 215 220

Ala Ser Glu Ile Pro Gly Asp Ser Ser Asp Arg Tyr His Glu Gln Val 225 230 235 240

Ser Ala Lys Arg Lys Val Val Lys Met Met Ile Val Val Val Cys Thr 245 250 255

Phe Ala Ile Cys Trp Leu Pro Phe His Ile Phe Phe Leu Leu Pro Tyr 260 265 270

Ile Asn Pro Asp Leu Tyr Leu Lys Lys Phe Ile Gln Gln Val Tyr Leu

275 280 285

Ala Ile Met Trp Leu Ala Met Ser Ser Thr Met Tyr Asn Pro Ile Ile 290 295 300

Tyr Cys Cys Leu Asn Asp Arg Phe Arg Leu Gly Phe Lys His Ala Phe 305 310 315 320

Arg Cys Cys Pro Phe Ile Ser Ala Gly Asp Tyr Glu Gly Leu Glu Met 325 330 335

Lys Ser Thr Arg Tyr Leu Gln Thr Gln Gly Ser Val Tyr Lys Val Ser 340 345 350

Arg Leu Glu Thr Thr Ile Ser Thr Val Val Gly Ala His Glu Glu 355 360 365

Pro Glu Asp Gly Pro Lys Ala Thr Pro Xaa Ser Leu Asp Leu Thr Ser 370 375 380

Asn Cys Ser Ser Arg Ser Asp Ser Lys Thr Met Thr Glu Ser Phe Ser 385 390 395 400

Phe Ser Ser Asn Val Leu Ser 405

<210> 293

<211> 1826

<212> DNA

<213> homo sapiens

<220>

<221> misc\_feature

<222> (1278)..(1278)

<223> wherein N is either a "C" or a "T".

<220>

<221> misc\_feature

<222> (227)..(227)

<223> wherein N is either a "T" or a "C".

<220>

<221> misc\_feature

<222> (536)..(536)

<223> wherein N is either a "C" or a "G".

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<220>
<221> misc_feature
<222> (1498)..(1498)
<223> wherein N is either a "G" or an "A".
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<400> 293 agtctgcact ggagctgcct ggtgaccaga agtttggagt ccgctgacgt cgccgcccag 60 atggcctcca ggctgaccct gctgaccctc ctgctgctgc tgctggctgg ggatagagcc 120 tecteaaate caaatgetae cageteeage teccaggate cagagagttt geaagacaga 180 ggcgaaggga aggtcgcaac aacagttatc tccaagatgc tattcgntga acccatcctg 240 gaggtttcca gcttgccgac aaccaactca acaaccaatt cagccaccaa aataacagct 300 aataccactg atgaacccac cacacaaccc accacagagc ccaccaccca acccaccatc 360 caacccaccc aaccaactac ccagctccca acagattctc ctacccagcc cactactggg 420 teettetgee caggacetgt tactetetge tetgacttgg agagteatte aacagaggee 480 gtgttggggg atgctttggt agatttctcc ctgaagctct accacgcctt ctcagnaatg 540 aagaaggtgg agaccaacat ggccttttcc ccattcagca tcgccagcct ccttacccag 600 gtcctgctcg gggctgggca gaacaccaaa acaaacctgg agagcatcct ctcttacccc 660 720 aaggacttca cetgtgteca ecaggeeetg aagggettea egaceaaagg tgteacetea gtctctcaga tcttccacag cccagacctg gccataaggg acacctttgt gaatgcctct 780 cggaccctgt acagcagcag ccccagagtc ctaagcaaca acagtgacgc caacttggag 840 ctcatcaaca cctgggtggc caagaacacc aacaacaaga tcagccggct gctagacagt 900 ctgccctccg atacccgcct tgtcctcctc aatgctatct acctgagtgc caagtggaag 960 acaacatttg atcccaagaa aaccagaatg gaaccctttc acttcaaaaa ctcagttata 1020 aaagtgccca tgatgaatag caagaagtac cctgtggccc atttcattga ccaaactttg 1080 aaagccaagg tggggcagct gcagctctcc cacaatctga gtttggtgat cctggtaccc 1140 cagaacctga aacatcgtct tgaagacatg gaacaggctc tcagcccttc tgttttcaag 1200 gccatcatgg agaaactgga gatgtccaag ttccagccca ctctcctaac actacccgc 1260 atcaaagtga cgaccagnca ggatatgctc tcaatcatgg agaaattgga attcttcgat 1320 ttttcttatg accttaacct gtgtgggctg acagaggacc cagatcttca ggtttctgcg 1380 atgcagcacc agacagtgct ggaactgaca gagactgggg tggaggcggc tgcagcctcc 1440 gccatctctg tggcccgcac cctgctggtc tttgaagtgc agcagccctt cctcttcntg 1500

| ctctgggacc | agcagcacaa | gttccctgtc | ttcatggggc | gagtatatga | ccccagggcc | 1560 |
|------------|------------|------------|------------|------------|------------|------|
| tgagacctgc | aggatcaggt | tagggcgagc | gctacctctc | cagcctcagc | tctcagttgc | 1620 |
| agccctgctg | ctgcctgcct | ggacttgccc | ctgccacctc | ctgcctcagg | tgtccgctat | 1680 |
| ccaccaaaag | ggctcctgag | ggtctgggca | agggacctgc | ttctattagc | ccttctccat | 1740 |
| ggccctgcca | tgctctccaa | accacttttt | gcagctttct | ctagttcaag | ttcaccagac | 1800 |
| tctataaata | aaacctgaca | gaccat     |            |            |            | 1826 |

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<211> 500
<212> PRT
<213> homo sapiens
<220>
<221>
      VARIANT
<222>
      (56)..(56)
<223>
      wherein Xaa is either "Val" or "Ala".
<220>
<221>
      VARIANT
<222>
      (159)..(159)
<223> wherein Xaa is either "Ala" or "Gly".
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wherein Xaa is either "Val" or "Met".

<400> 294

VARIANT

(480)..(480)

<221>

<222>

<223>

<210> 294

Met Ala Ser Arg Leu Thr Leu Leu Thr Leu Leu Leu Leu Leu Leu Leu Ala 1 5 10 15

Gly Asp Arg Ala Ser Ser Asn Pro Asn Ala Thr Ser Ser Ser Gln 20 25 30

Asp Pro Glu Ser Leu Gln Asp Arg Gly Glu Gly Lys Val Ala Thr Thr 35 40 45

Val Ile Ser Lys Met Leu Phe Xaa Glu Pro Ile Leu Glu Val Ser Ser 50 55 60

Leu Pro Thr Thr Asn Ser Thr Thr Asn Ser Ala Thr Lys Ile Thr Ala 65 70 75 80

Asn Thr Thr Asp Glu Pro Thr Thr Gln Pro Thr Thr Glu Pro Thr Thr 85 90 95

Gln Pro Thr Ile Gln Pro Thr Gln Pro Thr Thr Gln Leu Pro Thr Asp 100 Ser Pro Thr Gln Pro Thr Thr Gly Ser Phe Cys Pro Gly Pro Val Thr Leu Cys Ser Asp Leu Glu Ser His Ser Thr Glu Ala Val Leu Gly Asp Ala Leu Val Asp Phe Ser Leu Lys Leu Tyr His Ala Phe Ser Xaa Met 155 Lys Lys Val Glu Thr Asn Met Ala Phe Ser Pro Phe Ser Ile Ala Ser 165 170 Leu Leu Thr Gln Val Leu Leu Gly Ala Gly Gln Asn Thr Lys Thr Asn 185 Leu Glu Ser Ile Leu Ser Tyr Pro Lys Asp Phe Thr Cys Val His Gln 200 Ala Leu Lys Gly Phe Thr Thr Lys Gly Val Thr Ser Val Ser Gln Ile 215 Phe His Ser Pro Asp Leu Ala Ile Arg Asp Thr Phe Val Asn Ala Ser 230 235 Arg Thr Leu Tyr Ser Ser Pro Arg Val Leu Ser Asn Asn Ser Asp 245 250 Ala Asn Leu Glu Leu Ile Asn Thr Trp Val Ala Lys Asn Thr Asn Asn 260 265 Lys Ile Ser Arg Leu Leu Asp Ser Leu Pro Ser Asp Thr Arg Leu Val 280 Leu Leu Asn Ala Ile Tyr Leu Ser Ala Lys Trp Lys Thr Thr Phe Asp 295 Pro Lys Lys Thr Arg Met Glu Pro Phe His Phe Lys Asn Ser Val Ile 310 315 Lys Val Pro Met Met Asn Ser Lys Lys Tyr Pro Val Ala His Phe Ile 325 Asp Gln Thr Leu Lys Ala Lys Val Gly Gln Leu Gln Leu Ser His Asn Leu Ser Leu Val Ile Leu Val Pro Gln Asn Leu Lys His Arg Leu Glu 355 Asp Met Glu Gln Ala Leu Ser Pro Ser Val Phe Lys Ala Ile Met Glu Lys Leu Glu Met Ser Lys Phe Gln Pro Thr Leu Leu Thr Leu Pro Arg 390 395

Ile Lys Val Thr Thr Ser Gln Asp Met Leu Ser Ile Met Glu Lys Leu 410 Glu Phe Phe Asp Phe Ser Tyr Asp Leu Asn Leu Cys Gly Leu Thr Glu Asp Pro Asp Leu Gln Val Ser Ala Met Gln His Gln Thr Val Leu Glu Leu Thr Glu Thr Gly Val Glu Ala Ala Ala Ala Ser Ala Ile Ser Val 450 455 Ala Arg Thr Leu Leu Val Phe Glu Val Gln Gln Pro Phe Leu Phe Xaa 465 470 475 Leu Trp Asp Gln Gln His Lys Phe Pro Val Phe Met Gly Arg Val Tyr 490 485 Asp Pro Arg Ala 500

295 <210> <211> 871 <212> DNA <213>

homo sapiens

<220>

<221> misc\_feature <222> (592)..(592)

<223> wherein N is either an "A" or a "G".

<220>

<221> misc\_feature <222> (469)..(469)

<223> wherein N is either a "G" or a "C".

<400> 295

60 tectecacet getggeeect ggacacetet gteaceatgt ggtteetggt tetgtgeete gccctgtccc tgggggggac tggtgctgcg cccccgattc agtcccggat tgtgggaggc 120 tgggagtgtg agcagcattc ccagccctgg caggcggctc tgtaccattt cagcactttc 180 cagtgtgggg gcatcctggt gcaccgccag tgggtgctca cagctgctca ttgcatcagc 240 gacaattacc agetetgget gggtegecac aacttgtttg acgacgaaaa cacageecag 300 360 tttgttcatg tcagtgagag cttcccacac cctggcttca acatgagcct cctggagaac 420 cacaccegee aageagaega ggactacage caegaeetea tgetgeteeg eetgacagag cctgctgata ccatcacaga tgctgtgaag gtcgtggagt tgcccaccna ggaacccgaa 480 540 gtggggagca cctgtttggc ttccggctgg ggcagcatcg aaccagagaa tttctcattt

| ccagatgatc | tccagtgtgt | ggacctcaaa | atcctgccta | atgatgagtg | cnaaaaagcc | 600 |
|------------|------------|------------|------------|------------|------------|-----|
| cacgtccaga | aggtgacaga | cttcatgctg | tgtgtcggac | acctggaagg | tggcaaagac | 660 |
| acctgtgtgg | gtgattcagg | gggcccgctg | atgtgtgatg | gtgtgctcca | aggtgtcaca | 720 |
| tcatggggct | acgtcccttg | tggcaccccc | aataagcctt | ctgtcgccgt | cagagtgctg | 780 |
| tcttatgtga | agtggatcga | ggacaccata | gcggagaact | cctgaacgcc | cagccctgtc | 840 |
| ccctaccccc | agtaaaatca | aatgtgcatc | С          |            |            | 871 |

<210> 296 <211> 262 <212> PRT <213> homo sapiens <220> <221> VARIANT <222> (145)..(145)<223> wherein Xaa is either "Glu" or "Asn". <220>

<223> wherein Xaa is either "Lys" or "Glu".

VARIANT

(186)..(186)

<221>

<222>

<400> 296

Met Trp Phe Leu Val Leu Cys Leu Ala Leu Ser Leu Gly Gly Thr Gly  $1 \hspace{1cm} 5 \hspace{1cm} 10 \hspace{1cm} 15$ 

Ala Ala Pro Pro Ile Gln Ser Arg Ile Val Gly Gly Trp Glu Cys Glu 20 25 30

Gln His Ser Gln Pro Trp Gln Ala Ala Leu Tyr His Phe Ser Thr Phe  $35 \hspace{1cm} 40 \hspace{1cm} 45$ 

Gln Cys Gly Gly Ile Leu Val His Arg Gln Trp Val Leu Thr Ala Ala 50 55 60

His Cys Ile Ser Asp Asn Tyr Gln Leu Trp Leu Gly Arg His Asn Leu 65 70 75 80

Phe Asp Asp Glu Asn Thr Ala Gln Phe Val His Val Ser Glu Ser Phe 85 90 95

Pro His Pro Gly Phe Asn Met Ser Leu Leu Glu Asn His Thr Arg Gln
100 105 110

Ala Asp Glu Asp Tyr Ser His Asp Leu Met Leu Leu Arg Leu Thr Glu
115 120 125

Pro Ala Asp Thr Ile Thr Asp Ala Val Lys Val Val Glu Leu Pro Thr

<213> homo sapiens

|                              | 130          |                          |            |            |            | 135        |            |            |            |            | 140        |            |            |            |            |    |
|------------------------------|--------------|--------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|----|
| Xaa<br>145                   | Glu          | Pro                      | Glu        | Val        | Gly<br>150 | Ser        | Thr        | Cys        | Leu        | Ala<br>155 | Ser        | Gly        | Trp        | Gly        | Ser<br>160 |    |
| Ile                          | Glu          | Pro                      | Glu        | Asn<br>165 | Phe        | Ser        | Phe        | Pro        | Asp<br>170 | Asp        | Leu        | Gln        | Cys        | Val<br>175 | Asp        |    |
| Leu                          | Lys          | Ile                      | Leu<br>180 | Pro        | Asn        | Asp        | Glu        | Cys<br>185 | Xaa        | Lys        | Ala        | His        | Val<br>190 | Gln        | Lys        |    |
| Val                          | Thr          | Asp<br>195               | Phe        | Met        | Leu        | Cys        | Val<br>200 | Gly        | His        | Leu        | Glu        | Gly<br>205 | Gly        | Lys        | Asp        |    |
| Thr                          | Cys<br>210   | Val                      | Gly        | Asp        | Ser        | Gly<br>215 | Gly        | Pro        | Leu        | Met        | Cys<br>220 | Asp        | Gly        | Val        | Leu        |    |
| Gln<br>225                   | Gly          | Val                      | Thr        | Ser        | Trp<br>230 | Gly        | Tyr        | Val        | Pro        | Суs<br>235 | Gly        | Thr        | Pro        | Asn        | Lys<br>240 |    |
| Pro                          | Ser          | Val                      | Ala        | Val<br>245 | Arg        | Val        | Leu        | Ser        | Туг<br>250 | Val        | Lys        | Trp        | Ile        | Glu<br>255 | Asp        |    |
| Thr                          | Ile          | Ala                      | Glu<br>260 | Asn        | Ser        |            |            |            |            |            |            |            |            |            |            |    |
| <210<br><211<br><212<br><213 | -> .<br>?> . | 297<br>21<br>DNA<br>homo | sapi       | iens       |            |            |            |            |            |            |            |            |            |            |            |    |
| <400<br>cago                 |              | 297<br>ggc a             | atctt      | taato      | ct a       |            |            |            |            |            |            |            |            |            |            | 21 |
| <210<br><211<br><212         | -><br>?>     | 298<br>20<br>DNA         |            |            |            |            |            |            |            |            |            |            |            |            |            |    |
| <213                         | 3> :         | homo                     | sapi       | iens       |            |            |            |            |            |            |            |            |            |            |            |    |
| <400<br>agto                 |              | 298<br>ctt (             | cctt       | ccctt      | cc         |            |            |            |            |            |            |            |            |            |            | 20 |
| <210<br><211<br><212         | .>           | 299<br>21<br>DNA         |            |            |            |            |            |            |            |            |            |            |            |            |            |    |
| <213                         |              | homo                     | sapi       | iens       |            |            |            |            |            |            |            |            |            |            |            |    |
| <400<br>tago                 |              | 299<br>ctt (             | cttco      | cttt       | eg c       |            |            |            |            |            |            |            |            |            |            | 21 |
| <210<br><211<br><212         | .>           | 300<br>21<br>DNA         |            |            |            |            |            |            |            |            |            |            |            |            |            |    |

|                                 | <400>            | 300                |     |
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|                                 | tagct            | gtatt attaattag a  | 23  |
|                                 |                  |                    |     |
|                                 |                  |                    |     |
|                                 | <210>            | 301                |     |
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|                                 | <212>            |                    |     |
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|                                 | <213 <i>&gt;</i> | homo sapiens       |     |
|                                 | . 4 0 0 .        | 201                |     |
|                                 | <400>            |                    |     |
|                                 | tgatt            | gagac cagctgttgt g | 21  |
|                                 |                  |                    |     |
|                                 |                  |                    |     |
|                                 | <210>            |                    |     |
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|                                 | <213>            | homo sapiens       |     |
|                                 |                  |                    |     |
|                                 | <400>            |                    |     |
| L.i.                            | ccagc            | gtggg catacatg     | 18  |
| 'tarr<br>Hann                   |                  |                    |     |
| and that total that this iff if |                  |                    |     |
| £.)                             | <210>            | 303                |     |
| []                              | <211>            | 18                 |     |
|                                 | <212>            |                    |     |
| u.i                             |                  | homo sapiens       |     |
| 11 F 9                          |                  | -                  |     |
|                                 | <400>            | 303                |     |
|                                 |                  | gtggg catacatg     | 18  |
| \$\$<br>::                      | 5 .              |                    |     |
| ļ-:F                            |                  |                    |     |
| r.                              | <210>            | 304                |     |
|                                 | <211>            |                    |     |
|                                 | <212>            |                    |     |
| 1111                            | <213>            |                    |     |
| ¥z≠ <b>j</b><br>U = 1           | -415/            | nomo pubicip       |     |
| rrk.                            | <400>            | 304                |     |
|                                 |                  | tttga cetecaggaa e | 2.4 |
|                                 |                  | cetya eetecayyaa e | 21  |
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|                                 | <210>            | 3.05               |     |
|                                 |                  |                    |     |
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|                                 | 400              | 205                |     |
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|                                 | cttcct           | tttga cctccaggaa c | 21  |
|                                 |                  |                    |     |
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|---|-------------------------|------------------|----|
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|   |                         |                  |    |
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|   | <400>                   | 308              |    |
|   |                         | gacag gtcagggctt | α  |
|   | 0                       | , 300            | 5  |
|   | J210s                   | 300              |    |
| ļask                                    | <210><br><211>          |                  |    |
| L.                                      | <211>                   |                  |    |
|   | <213>                   |                  |    |
| 17. 17. 17. 17. 17. 17. 17. 17. 17. 17. |                         |                  |    |
| 16-1 E<br>L1 <sup>2</sup> 5             | <400>                   |                  | ~  |
| - 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | taaato                  | gacag gtcagggctt | g  |
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| <100-          | EE2                 |    |  |
|                | 552                 |    |  |
| ggcccac        | aaa gacataaatt      | 20 |  |
|                |                     |    |  |
|                |                     |    |  |
|                | 553                 |    |  |
| <211>          | 8                   |    |  |
| <212>          | PRT                 |    |  |
|                | Bacteriophage T7    |    |  |
| _ <del>_</del> | <u>-</u>            |    |  |
| <400>          | 553                 |    |  |
|                |                     |    |  |

| Asp Tyr Lys<br>1  | : Asp Asp As<br>5 | sp Asp Lys  |            |            |            |     |  |  |  |  |
|---|-------------------|-------------|------------|------------|------------|-----|--|--|--|--|
| <210> 554<br><211> 733<br><212> DNA<br><213> homo sapiens |                   |             |            |            |            |     |  |  |  |  |
| <400> 554   |                   |             |            |            |            | 60  |  |  |  |  |
|   |                   | _           | ctcacacatg |            |            | 60  |  |  |  |  |
| aattcgaggg  | tgcaccgtca        | gtcttcctct  | tcccccaaa  | acccaaggac | accctcatga | 120 |  |  |  |  |
| tctcccggac  | tcctgaggtc        | acatgcgtgg  | tggtggacgt | aagccacgaa | gaccctgagg | 180 |  |  |  |  |
| tcaagttcaa  | ctggtacgtg        | gacggcgtgg  | aggtgcataa | tgccaagaca | aagccgcggg | 240 |  |  |  |  |
| aggagcagta  | caacagcacg        | taccgtgtgg  | tcagcgtcct | caccgtcctg | caccaggact | 300 |  |  |  |  |
| ggctgaatgg  | caaggagtac        | aagtgcaagg  | tctccaacaa | agccctccca | acccccatcg | 360 |  |  |  |  |
| agaaaaccat  | ctccaaagcc        | aaagggcagc  | cccgagaacc | acaggtgtac | accetgeece | 420 |  |  |  |  |
| catcccggga  | tgagctgacc        | aagaaccagg  | tcagcctgac | ctgcctggtc | aaaggcttct | 480 |  |  |  |  |
| atccaagcga  | catcgccgtg        | gagtgggaga  | gcaatgggca | gccggagaac | aactacaaga | 540 |  |  |  |  |
| ccacgcctcc  | cgtgctggac        | tccgacggct  | ccttcttcct | ctacagcaag | ctcaccgtgg | 600 |  |  |  |  |
| acaagagcag  | gtggcagcag        | gggaacgtct  | tctcatgctc | cgtgatgcat | gaggctctgc | 660 |  |  |  |  |
| acaaccacta  | cacgcagaag        | agcctctccc  | tgtctccggg | taaatgagtg | cgacggccgc | 720 |  |  |  |  |
| gactctagag  | gat               |             |            |            |            | 733 |  |  |  |  |
| <220> <221> misc <222> (348)                              | c_feature         |             |            |            |            |     |  |  |  |  |
| <223> wher  | cein N is e:      | ither a "C" | or a "T".  |            |            |     |  |  |  |  |
| <400> 555<br>ctgtgcatgg                                   | catcatcctg        | gccccctcta  | gagctccaat | cctccaacca | gagecagete | 60  |  |  |  |  |
| ttccctcaaa  | atgctacggc        | ctgtgacaat  | gctccagaag | cctgggacct | gctgcacaga | 120 |  |  |  |  |
| gtgctgccga  | catttatcat        | ctccatctgt  | ttcttcggcc | tcctagggaa | cctttttgtc | 180 |  |  |  |  |
| ctgttggtct  | tcctcctgcc        | ccggcggcaa  | ctgaacgtgg | cagaaatcta | cctggccaac | 240 |  |  |  |  |
| ctggcagcct  | ctgatctggt        | gtttgtcttg  | ggcttgccct | tctgggcaga | gaatatctgg | 300 |  |  |  |  |

| aaccagttta | actggccttt | cggagccctc | ctctgccgtg | tcatcaatgg | ggtcatcaag | 360  |
|------------|------------|------------|------------|------------|------------|------|
| gccaatttgt | tcatcagcat | cttcctggtg | gtggccatca | gccaggaccg | ctaccgcgtg | 420  |
| ctggtgcacc | ctatggccag | cggaaggcag | cagcggcgga | ggcaggcccg | ggtcacctgc | 480  |
| gtgctcatct | gggttgtggg | gggcctcttg | agcatcccca | cattcctgct | gcgatccatc | 540  |
| caagccgtcc | cagatctgaa | catcaccgcc | tgcatcctgc | tcctccccca | tgaggcctgg | 600  |
| cactttgcaa | ggattgtgga | gttaaatatt | ctgggtttcc | tcctaccact | ggctgcgatc | 660  |
| gtcttcttca | actaccacat | cctggcctcc | ctgcgaacgc | gggaggaggt | cagcaggaca | 720  |
| agagtgcggg | ggccgaagga | tagcaagacc | acagcgctga | tectcacget | cgtggttgcc | 780  |
| ttcctggtct | gctgggcccc | ttaccacttc | tttgccttcc | tggaattctt | attccaggtg | 840  |
| caagcagtcc | gaggctgctt | ttgggaggac | ttcattgacc | tgggcctgca | attggccaac | 900  |
| ttctttgcct | tcactaacag | ctccctgaat | ccagtaattt | atgtctttgt | gggccggctc | 960  |
| ttcaggacca | aggtctggga | actttataaa | caatgcaccc | ctaaaagtct | tgctccaata | 1020 |
| tcttcatccc | ataggaaaga | aatcttccaa | cttttctggc | ggaattaaaa | cagcattgaa | 1080 |
| cc         |            |            |            |            |            | 1082 |

<210> 556

<211> 353 <212> PRT

<213> Homo sapiens

<400> 556

Met Ala Ser Ser Trp Pro Pro Leu Glu Leu Gln Ser Ser Asn Gln Ser 1 5 10 15

Gln Leu Phe Pro Gln Asn Ala Thr Ala Cys Asp Asn Ala Pro Glu Ala 20 25 30

Trp Asp Leu Leu His Arg Val Leu Pro Thr Phe Ile Ile Ser Ile Cys 35 40 45

Phe Phe Gly Leu Leu Gly Asn Leu Phe Val Leu Leu Val Phe Leu Leu 50 55 60

Pro Arg Arg Gln Leu Asn Val Ala Glu Ile Tyr Leu Ala Asn Leu Ala 65 70 75 80

Ala Ser Asp Leu Val Phe Val Leu Gly Leu Pro Phe Trp Ala Glu Asn 85 90 95

Ile Trp Asn Gln Phe Asn Trp Pro Phe Gly Ala Leu Leu Cys Arg Val 100 105 110 Ile Asn Gly Val Ile Lys Ala Asn Leu Phe Ile Ser Ile Phe Leu Val 115 120 125

Val Ala Ile Ser Gln Asp Arg Tyr Arg Val Leu Val His Pro Met Ala 130 135 140

Ser Gly Arg Gln Gln Arg Arg Gln Ala Arg Val Thr Cys Val Leu 145 150 155 160

Ile Trp Val Val Gly Gly Leu Leu Ser Ile Pro Thr Phe Leu Leu Arg 165 170 175

Ser Ile Gln Ala Val Pro Asp Leu Asn Ile Thr Ala Cys Ile Leu Leu 180 185 190

Leu Pro His Glu Ala Trp His Phe Ala Arg Ile Val Glu Leu Asn Ile 195 200 205

Leu Gly Phe Leu Leu Pro Leu Ala Ala Ile Val Phe Phe Asn Tyr His 210 215 220

Ile Leu Ala Ser Leu Arg Thr Arg Glu Glu Val Ser Arg Thr Arg Val 225 230 235 240

Arg Gly Pro Lys Asp Ser Lys Thr Thr Ala Leu Ile Leu Thr Leu Val 245 250 255

Val Ala Phe Leu Val Cys Trp Ala Pro Tyr His Phe Phe Ala Phe Leu 260 265 270

Glu Phe Leu Phe Gln Val Gln Ala Val Arg Gly Cys Phe Trp Glu Asp 275 280 285

Phe Ile Asp Leu Gly Leu Gln Leu Ala Asn Phe Phe Ala Phe Thr Asn 290 295 300

Ser Ser Leu Asn Pro Val Ile Tyr Val Phe Val Gly Arg Leu Phe Arg 305 310 315 320

Thr Lys Val Trp Glu Leu Tyr Lys Gln Cys Thr Pro Lys Ser Leu Ala 325 330 335

Pro Ile Ser Ser His Arg Lys Glu Ile Phe Gln Leu Phe Trp Arg 340 345 350

Asn

<210> 557

<211> 1082

<212> DNA

<213> Homo sapiens

<220>

<221> misc\_feature

<222> (462)..(462)

## <223> wherein N is either a "G" or an "A".

| -400× EE7               |            |            |            |            |            |      |
|-------------------------|------------|------------|------------|------------|------------|------|
| <400> 557<br>ctgtgcatgg | catcatcctg | gcccctcta  | gagctccaat | cctccaacca | gagccagctc | 60   |
| ttccctcaaa              | atgctacggc | ctgtgacaat | gctccagaag | cctgggacct | gctgcacaga | 120  |
| gtgctgccga              | catttatcat | ctccatctgt | ttcttcggcc | tcctagggaa | cctttttgtc | 180  |
| ctgttggtct              | tcctcctgcc | ccggcggcaa | ctgaacgtgg | cagaaatcta | cctggccaac | 240  |
| ctggcagcct              | ctgatctggt | gtttgtcttg | ggcttgccct | tctgggcaga | gaatatctgg | 300  |
| aaccagttta              | actggccttt | cggagccctc | ctctgccgtg | tcatcaacgg | ggtcatcaag | 360  |
| gccaatttgt              | tcatcagcat | cttcctggtg | gtggccatca | gccaggaccg | ctaccgcgtg | 420  |
| ctggtgcacc              | ctatggccag | cggaaggcag | cagcggcgga | gacaggcccg | ggtcacctgc | 480  |
| gtgctcatct              | gggttgtggg | gggcctcttg | agcatcccca | cattcctgct | gcgatccatc | 540  |
| caagccgtcc              | cagatctgaa | catcaccgcc | tgcatcctgc | tcctccccca | tgaggcctgg | 600  |
| cactttgcaa              | ggattgtgga | gttaaatatt | ctgggtttcc | tcctaccact | ggctgcgatc | 660  |
| gtcttcttca              | actaccacat | cctggcctcc | ctgcgaacgc | gggaggaggt | cagcaggaca | 720  |
| agagtgcggg              | ggccgaagga | tagcaagacc | acagcgctga | tcctcacgct | cgtggttgcc | 780  |
| ttcctggtct              | gctgggcccc | ttaccacttc | tttgccttcc | tggaattctt | attccaggtg | 840  |
| caagcagtcc              | gaggctgctt | ttgggaggac | ttcattgacc | tgggcctgca | attggccaac | 900  |
| ttctttgcct              | tcactaacag | ctccctgaat | ccagtaattt | atgtctttgt | gggccggctc | 960  |
| ttcaggacca              | aggtctggga | actttataaa | caatgcaccc | ctaaaagtct | tgctccaata | 1020 |
| tcttcatccc              | ataggaaaga | aatcttccaa | cttttctggc | ggaattaaaa | cagcattgaa | 1080 |
| cc ·                    |            |            |            |            |            | 1082 |
|                         |            |            |            |            |            |      |

<sup>&</sup>lt;210> 558

Met Ala Ser Ser Trp Pro Pro Leu Glu Leu Gln Ser Ser Asn Gln Ser 5

Gln Leu Phe Pro Gln Asn Ala Thr Ala Cys Asp Asn Ala Pro Glu Ala

Trp Asp Leu Leu His Arg Val Leu Pro Thr Phe Ile Ile Ser Ile Cys

<sup>&</sup>lt;211> 353 <212> PRT

<sup>&</sup>lt;213> Homo sapiens

<sup>&</sup>lt;400> 558

|            |            | 35         |            |            |            |            | 40         |            |            |            |            | 45         |            |            |            |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Phe        | Phe<br>50  | Gly        | Leu        | Leu        | Gly        | Asn<br>55  | Leu        | Phe        | Val        | Leu        | Leu<br>60  | Val        | Phe        | Leu        | Leu        |
| Pro<br>65  | Arg        | Arg        | Gln        | Leu        | Asn<br>70  | Val        | Ala        | Glu        | Ile        | Tyr<br>75  | Leu        | Ala        | Asn        | Leu        | Ala<br>80  |
| Ala        | Ser        | Asp        | Leu        | Val<br>85  | Phe        | Val        | Leu        | Gly        | Leu<br>90  | Pro        | Phe        | Trp        | Ala        | Glu<br>95  | Asn        |
| Ile        | Trp        | Asn        | Gln<br>100 | Phe        | Asn        | Trp        | Pro        | Phe<br>105 | Gly        | Ala        | Leu        | Leu        | Cys<br>110 | Arg        | Val        |
| Ile        | Asn        | Gly<br>115 | Val        | Ile        | Lys        | Ala        | Asn<br>120 | Leu        | Phe        | Ile        | Ser        | Ile<br>125 | Phe        | Leu        | Val        |
| Val        | Ala<br>130 | Ile        | Ser        | Gln        | Asp        | Arg<br>135 | Tyr        | Arg        | Val        | Leu        | Val<br>140 | His        | Pro        | Met        | Ala        |
| Ser<br>145 | Gly        | Arg        | Gln        | Gln        | Arg<br>150 | Arg        | Arg        | Gln        | Ala        | Arg<br>155 | Val        | Thr        | Cys        | Val        | Leu<br>160 |
| Ile        | Trp        | Val        | Val        | Gly<br>165 | Gly        | Leu        | Leu        | Ser        | Ile<br>170 | Pro        | Thr        | Phe        | Leu        | Leu<br>175 | Arg        |
| Ser        | Ile        | Gln        | Ala<br>180 | Val        | Pro        | Asp        | Leu        | Asn<br>185 | Ile        | Thr        | Ala        | Cys        | Ile<br>190 | Leu        | Leu        |
| Leu        | Pro        | His<br>195 | Glu        | Ala        | Trp        | His        | Phe<br>200 | Ala        | Arg        | Ile        | Val        | Glu<br>205 | Leu        | Asn        | Ile        |
| Leu        | Gly<br>210 | Phe        | Leu        | Leu        | Pro        | Leu<br>215 | Ala        | Ala        | Ile        | Val        | Phe<br>220 | Phe        | Asn        | Tyr        | His        |
| Ile<br>225 | Leu        | Ala        | Ser        | Leu        | Arg<br>230 | Thr        | Arg        | Glu        | Glu        | Val<br>235 | Ser        | Arg        | Thr        | Arg        | Val<br>240 |
| Arg        | Gly        | Pro        | Lys        | Asp<br>245 | Ser        | Lys        | Thr        | Thr        | Ala<br>250 | Leu        | Ile        | Leu        | Thr        | Leu<br>255 | Val        |
| Val        | Ala        | Phe        | Leu<br>260 | Val        | Cys        | Trp        | Ala        | Pro<br>265 | Tyr        | His        | Phe        | Phe        | Ala<br>270 | Phe        | Leu        |
| Glu        | Phe        | Leu<br>275 | Phe        | Gln        | Val        | Gln        | Ala<br>280 | Val        | Arg        | Gly        | Cys        | Phe<br>285 | Trp        | Glu        | Asp        |
| Phe        | Ile<br>290 | Asp        | Leu        | Gly        | Leu        | Gln<br>295 | Leu        | Ala        | Asn        | Phe        | Phe<br>300 | Ala        | Phe        | Thr        | Asn        |
| Ser<br>305 | Ser        | Leu        | Asn        | Pro        | Val<br>310 | Ile        | Tyr        | Val        | Phe        | Val<br>315 | Gly        | Arg        | Leu        | Phe        | Arg<br>320 |
| Thr        | Lys        | Val        | Trp        | Glu        | Leu        | Tyr        | Lys        | Gln        | Cys        | Thr        | Pro        | Lys        | Ser        | Leu        | Ala        |

330

Pro Ile Ser Ser Ser His Arg Lys Glu Ile Phe Gln Leu Phe Trp Arg

340 345 350

Asn

<210> 559
<211> 1082
<212> DNA
<213> Homo sapiens
<220>
<221> misc\_feature
<222> (577)..(577)
<223> wherein N is either a "C" or a "G".

<400> 559 ctgtgcatgg catcatcctg gccccctcta gagctccaat cctccaacca gagccagctc 60 120 ttccctcaaa atgctacggc ctgtgacaat gctccagaag cctgggacct gctgcacaga 180 gtgctgccga catttatcat ctccatctgt ttcttcggcc tcctagggaa cctttttgtc 240 ctgttggtct tcctcctgcc ccggcggcaa ctgaacgtgg cagaaatcta cctggccaac 300 ctggcagcct ctgatctggt gtttgtcttg ggcttgccct tctgggcaga gaatatctgg aaccagttta actggccttt cggagccctc ctctgccgtg tcatcaacgg ggtcatcaag 360 420 gccaatttgt tcatcagcat cttcctggtg gtggccatca gccaggaccg ctaccgcgtg 480 ctggtgcacc ctatggccag cggaaggcag cagcggcgga ggcaggcccg ggtcacctgc gtgctcatct gggttgtggg gggcctcttg agcatcccca cattcctgct gcgatccatc 540 600 caagccgtcc cagatctgaa catcaccgcc tgcatcgtgc tcctccccca tgaggcctgg 660 cactttgcaa ggattgtgga gttaaatatt ctgggtttcc tcctaccact ggctgcgatc 720 gtcttcttca actaccacat cctggcctcc ctgcgaacgc gggaggaggt cagcaggaca agagtgcggg ggccgaagga tagcaagacc acagcgctga tcctcacgct cgtggttgcc 780 840 ttcctggtct gctgggcccc ttaccacttc tttgccttcc tggaattctt attccaggtg 900 caagcagtcc gaggctgctt ttgggaggac ttcattgacc tgggcctgca attggccaac 960 ttctttgcct tcactaacag ctccctgaat ccagtaattt atgtctttgt gggccggctc ttcaggacca aggtctggga actttataaa caatgcaccc ctaaaagtct tgctccaata 1020 tcttcatccc ataggaaaga aatcttccaa cttttctggc ggaattaaaa cagcattgaa 1080 1082 CC

<210> 560

<211> 353

<212> PRT

<213> Homo sapiens

<220>

<221> VARIANT

<222> (191)..(191)

<223> wherein Xaa is either "Leu" or "Val".

<400> 560

Met Ala Ser Ser Trp Pro Pro Leu Glu Leu Gln Ser Ser Asn Gln Ser 1 5 10 15

Gln Leu' Phe Pro Gln Asn Ala Thr Ala Cys Asp Asn Ala Pro Glu Ala 20 25 30

Trp Asp Leu Leu His Arg Val Leu Pro Thr Phe Ile Ile Ser Ile Cys 35 40 45

Phe Phe Gly Leu Leu Gly Asn Leu Phe Val Leu Leu Val Phe Leu Leu 50 55 60

Pro Arg Arg Gln Leu Asn Val Ala Glu Ile Tyr Leu Ala Asn Leu Ala 65 70 75 80

Ala Ser Asp Leu Val Phe Val Leu Gly Leu Pro Phe Trp Ala Glu Asn 85 90 95

Ile Trp Asn Gln Phe Asn Trp Pro Phe Gly Ala Leu Leu Cys Arg Val 100 105 110

Ile Asn Gly Val Ile Lys Ala Asn Leu Phe Ile Ser Ile Phe Leu Val 115 120 125

Val Ala Ile Ser Gln Asp Arg Tyr Arg Val Leu Val His Pro Met Ala 130 135 140

Ser Gly Arg Gln Gln Arg Arg Arg Gln Ala Arg Val Thr Cys Val Leu 145 150 155 160

Ile Trp Val Val Gly Gly Leu Leu Ser Ile Pro Thr Phe Leu Leu Arg
165 170 175

Ser Ile Gln Ala Val Pro Asp Leu Asn Ile Thr Ala Cys Ile Val Leu 180 185 190

Leu Pro His Glu Ala Trp His Phe Ala Arg Ile Val Glu Leu Asn Ile
195 200 205

Leu Gly Phe Leu Leu Pro Leu Ala Ala Ile Val Phe Phe Asn Tyr His 210 215 220

Ile Leu Ala Ser Leu Arg Thr Arg Glu Glu Val Ser Arg Thr Arg Val 225 230 235 240

| Arg        | Gly        | Pro        | Lys        | Asp<br>245 | Ser        | Lys        | Thr        | Thr        | Ala<br>250 | Leu        | Ile        | Leu        | Thr        | Leu<br>255 | Val        |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Val        | Ala        | Phe        | Leu<br>260 | Val        | Cys        | Trp        | Ala        | Pro<br>265 | Tyr        | His        | Phe        | Phe        | Ala<br>270 | Phe        | Leu        |
| Glu        | Phe        | Leu<br>275 | Phe        | Gln        | Val        | Gln        | Ala<br>280 | Val        | Arg        | Gly        | Cys        | Phe<br>285 | Trp        | Glu        | Asp        |
|            | Ile<br>290 | Asp        | Leu        | Gly        | Leu        | Gln<br>295 | Leu        | Ala        | Asn        | Phe        | Phe<br>300 | Ala        | Phe        | Thr        | Asn        |
| Ser<br>305 | Ser        | Leu        | Asn        | Pro        | Val<br>310 | Ile        | Tyr        | Val        | Phe        | Val<br>315 | Gly        | Arg        | Leu        | Phe        | Arg<br>320 |
| Thr        | Lys        | Val        | Trp        | Glu<br>325 | Leu        | Tyr        | Lys        | Gln        | 330<br>Cys | Thr        | Pro        | Lys        | Ser        | Leu<br>335 | Ala        |
| Pro        | Ile        | Ser        | Ser<br>340 | Ser        | His        | Arg        | Lys        | Glu<br>345 | Ile        | Phe        | Gln        | Leu        | Phe<br>350 | Trp        | Arg        |
| Asn        |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |
| <21        | 0>         | 561        |            |            |            |            |            |            |            |            |            |            |            |            |            |

<211> 1082 <212> DNA <213> Homo sapiens

<220> <221>

misc\_feature <222> (705)..(705) wherein N is either a "G" or an "A".

<400> 561

60 ctgtgcatgg catcatcctg gcccctcta gagctccaat cctccaacca gagccagctc ttccctcaaa atgctacggc ctgtgacaat gctccagaag cctgggacct gctgcacaga 120 gtgctgccga catttatcat ctccatctgt ttcttcggcc tcctagggaa cctttttgtc 180 ctgttggtct tcctcctgcc ccggcggcaa ctgaacgtgg cagaaatcta cctggccaac 240 ctggcagcct ctgatctggt gtttgtcttg ggcttgccct tctgggcaga gaatatctgg 300 aaccagttta actggccttt cggagccctc ctctgccgtg tcatcaacgg ggtcatcaag 360 gccaatttgt tcatcagcat cttcctggtg gtggccatca gccaggaccg ctaccgcgtg 420 ctggtgcacc ctatggccag cggaaggcag cagcggcgga ggcaggcccg ggtcacctgc 480 gtgctcatct gggttgtggg gggcctcttg agcatcccca cattcctgct gcgatccatc 540 600 caagccgtcc cagatctgaa catcaccgcc tgcatcctgc tcctccccca tgaggcctgg 660 cactttgcaa ggattgtgga gttaaatatt ctgggtttcc tcctaccact ggctgcgatc

| gtcttcttca | actaccacat | cctggcctcc | ctgcgaacgc | gggaggaggt | cagcaggaca | 720  |
|------------|------------|------------|------------|------------|------------|------|
| agagtgcggg | ggccgaagga | tagcaagacc | acagcgctga | tcctcacgct | cgtggttgcc | 780  |
| ttcctggtct | gctgggcccc | ttaccacttc | tttgccttcc | tggaattctt | attccaggtg | 840  |
| caagcagtcc | gaggctgctt | ttgggaggac | ttcattgacc | tgggcctgca | attggccaac | 900  |
| ttctttgcct | tcactaacag | ctccctgaat | ccagtaattt | atgtctttgt | gggccggctc | 960  |
| ttcaggacca | aggtctggga | actttataaa | caatgcaccc | ctaaaagtct | tgctccaata | 1020 |
| tcttcatccc | ataggaaaga | aatcttccaa | cttttctggc | ggaattaaaa | cagcattgaa | 1080 |
| CC         |            |            |            |            |            | 1082 |

<210> 562

<211> 353

<212> PRT

<213> Homo sapiens

<400> 562

Met Ala Ser Ser Trp Pro Pro Leu Glu Leu Gln Ser Ser Asn Gln Ser 1 5 10 15

Gln Leu Phe Pro Gln Asn Ala Thr Ala Cys Asp Asn Ala Pro Glu Ala 20 25 30

Trp Asp Leu Leu His Arg Val Leu Pro Thr Phe Ile Ile Ser Ile Cys 35 40 45

Phe Phe Gly Leu Leu Gly Asn Leu Phe Val Leu Leu Val Phe Leu Leu 50 55 60

Pro Arg Arg Gln Leu Asn Val Ala Glu Ile Tyr Leu Ala Asn Leu Ala 65 70 75 80

Ala Ser Asp Leu Val Phe Val Leu Gly Leu Pro Phe Trp Ala Glu Asn 85 90 95

Ile Trp Asn Gln Phe Asn Trp Pro Phe Gly Ala Leu Leu Cys Arg Val 100 105 110

Ile Asn Gly Val Ile Lys Ala Asn Leu Phe Ile Ser Ile Phe Leu Val 115 120 125

Val Ala Ile Ser Gln Asp Arg Tyr Arg Val Leu Val His Pro Met Ala 130 135 140

Ser Gly Arg Gln Gln Arg Arg Gln Ala Arg Val Thr Cys Val Leu 145 150 155 160

Ile Trp Val Val Gly Gly Leu Leu Ser Ile Pro Thr Phe Leu Leu Arg 165 170 175

| Ser Ile Gln Ala Val Pro Asp Leu Asn Ile Thr Ala Cys Ile Leu Leu<br>180 185 190     |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|
| Leu Pro His Glu Ala Trp His Phe Ala Arg Ile Val Glu Leu Asn Ile<br>195 200 205     |  |  |  |  |  |  |  |  |  |
| Leu Gly Phe Leu Leu Pro Leu Ala Ala Ile Val Phe Phe Asn Tyr His 210 215 220        |  |  |  |  |  |  |  |  |  |
| Ile Leu Ala Ser Leu Arg Thr Arg Lys Glu Val Ser Arg Thr Arg Val225230235240        |  |  |  |  |  |  |  |  |  |
| Arg Gly Pro Lys Asp Ser Lys Thr Thr Ala Leu Ile Leu Thr Leu Val<br>245 250 255     |  |  |  |  |  |  |  |  |  |
| Val Ala Phe Leu Val Cys Trp Ala Pro Tyr His Phe Phe Ala Phe Leu 260 265 270        |  |  |  |  |  |  |  |  |  |
| Glu Phe Leu Phe Gln Val Gln Ala Val Arg Gly Cys Phe Trp Glu Asp 275 • 280 285      |  |  |  |  |  |  |  |  |  |
| Phe Ile Asp Leu Gly Leu Gln Leu Ala Asn Phe Phe Ala Phe Thr Asn 290 295 300        |  |  |  |  |  |  |  |  |  |
| Ser Ser Leu Asn Pro Val Ile Tyr Val Phe Val Gly Arg Leu Phe Arg<br>305 310 315 320 |  |  |  |  |  |  |  |  |  |
| Thr Lys Val Trp Glu Leu Tyr Lys Gln Cys Thr Pro Lys Ser Leu Ala<br>325 330 335     |  |  |  |  |  |  |  |  |  |
| Pro Ile Ser Ser His Arg Lys Glu Ile Phe Gln Leu Phe Trp Arg<br>340 345 350         |  |  |  |  |  |  |  |  |  |
| Asn  |  |  |  |  |  |  |  |  |  |
| <210> 563<br><211> 3733<br><212> DNA<br><213> Homo sapiens                         |  |  |  |  |  |  |  |  |  |
| <220> <221> misc_feature <222> (40)(40) <223> wherein N is either a "C" or a "T".  |  |  |  |  |  |  |  |  |  |
| <400> 563 atgttctctc cctggaagat atcaatgttt ctgtctgttt gtgaggactc cgtgcccacc        |  |  |  |  |  |  |  |  |  |
| acggcctctt tcagcgccga catgctcaat gtcaccttgc aagggcccac tcttaacggg                  |  |  |  |  |  |  |  |  |  |
| acctttgccc agagcaaatg cccccaagtg gagtggctgg gctggctcaa caccatccag                  |  |  |  |  |  |  |  |  |  |

cccccttcc tctgggtgct gttcgtgctg gccaccctag agaacatctt tgtcctcagc

300 gtcttctgcc tgcacaagag cagctgcacg gtggcagaga tctacctggg gaacctggcc gcagcagacc tgatcctggc ctgcgggctg cccttctggg ccatcaccat ctccaacaac 360 ttcgactggc tctttgggga gacgctctgc cgcgtggtga atgccattat ctccatgaac 420 ctgtacagca gcatctgttt cctgatgctg gtgagcatcg accgctacct ggccctggtg 480 540 aaaaccatgt ccatgggccg gatgcgcggc gtgcgctggg ccaagctcta cagcttggtg atctgggggt gtacgctgct cctgagctca cccatgctgg tgttccggac catgaaggag 600 660 tacagcgatg agggccacaa cgtcaccgct tgtgtcatca gctacccatc cctcatctgg gaagtgttca ccaacatgct cctgaatgtc gtgggcttcc tgctgcccct gagtgtcatc 720 accttctgca cgatgcagat catgcaggtg ctgcggaaca acgagatgca gaagttcaag 780 840 gagatccaga cggagaggag ggccacggtg ctagtcctgg ttgtgctgct gctattcatc 900 atctgctggc tgcccttcca gatcagcacc ttcctggata cgctgcatcg cctcggcatc 960 ctctccagct gccaggacga gcgcatcatc gatgtaatca cacagatcgc ctccttcatg 1020 gcctacagca acagctgcct caacccactg gtgtacgtga tcgtgggcaa gcgcttccga 1080 aagaagtett gggaggtgta ccagggagtg tgccagaaag ggggetgcag gtcagaacce attcagatgg agaactccat gggcacactg cggacctcca tctccgtgga acgccagatt 1140 1200 cacaaactgc aggactgggc agggagcaga cagtgagcaa acgccagcag ggctgctgtg 1260 aatttgtgta aggattgagg gacagttgct tttcagcatg ggcccaggaa tgccaaggag 1320 acatctatgc acgaccttgg gaaatgagtt gatgtctccg gtaaaacacc ggagactaat 1380 tcctgccctg cccaattttg cagggagcat ggctgtgagg atggggtgaa ctcacgcaca 1440 gccaaggact ccaaaatcac aacagcatta ctgttcttat ttgctgccac acctgagcca 1500 gcctgctcct tcccaggagt ggaggaggcc tggggggagg gagaggagtg actgagcttc 1560 cctcccgtgt gttctccgtc cctgccccag caagacaact tagatctcca ggagaactgc catccagctt tggtgcaatg gctgagtgca caagtgagtt gttgccctgg gtttctttaa 1620 1680 tctattcagc tagaactttg aaggacaatt tcttgcatta ataaaggtta agccctgagg 1740 ggtccctgat aacaacctgg agaccaggat tttatggctc ccctcactga tggacaagga 1800 ggtctgtgcc aaagaagaat ccaataagca catattgagc acttgctgta tatgcagtat 1860 tgagcactgt aggcaagacc caagaaagag aaggagccat ctccatcttg aaggaactca aagactcaag tgggaacgac tgggcactgc caccaccaga aagctgttcg acgagacggt 1920 cgagcagggt gctgtgggtg atatggacag cagaaggggg agaccaaggt tccagctcaa 1980

| ccaataacta | ttgcacaacc | acctgtccct | gcctcagttc | ccttttatgt | aacatgaagt | 2040 |
|------------|------------|------------|------------|------------|------------|------|
| cgttgtgagg | gttaaaggca | gtaacaggta | taaagtactt | agaaaagcaa | agggtgctac | 2100 |
| gtacatgtga | ggcatcatta | cgcagacgta | actgggatat | gtttactata | aggaaaagac | 2160 |
| actgaggtct | agaaatagct | ccgtggagca | gaatcagtat | tgggagccgg | tggcggtgtg | 2220 |
| aagcaccagt | gtctggcaca | cagtaggtgc | tcattggctc | ccttccacct | gtcattccca | 2280 |
| ccaccctgag | gccccaaccg | ccacacacac | aggagcattt | ggagagaagg | ccatgtcttc | 2340 |
| aaagtctgat | ttgtgatgag | gcagaggaag | atatttctaa | tcggtcttgc | ccagaggatc | 2400 |
| acagtgctga | gaccccccac | caccagccgg | tacctgggaa | gggggagagt | gcaggcctgc | 2460 |
| tcagggactg | ttcctgtctc | agcaaccaag | ggattgttcc | tgtcaatcaa | tggtttattg | 2520 |
| gaaggtggcc | cagtatgagc | cctagaagag | tgtgaaaagg | aatggcaatg | gtgttcacca | 2580 |
| tcggcagtgc | cagggcagca | ctcattcact | tgataaatga | atatttatta | gctggttgga | 2640 |
| gagctagaac | ctggagagct | agaacctgga | gaactagaac | ctggagggct | agaacctgga | 2700 |
| gaggctagaa | ccaagaaggg | ctagaacctg | gaggggctag | aacctagaga | agctaaaacc | 2760 |
| tgagctagaa | gctggaggac | tagaacctgg | agggctggaa | tctgaagggc | tagaacctgg | 2820 |
| agggctggaa | tctggagagc | tagaacctgg | agggctagaa | cctggagggc | tagaacctag | 2880 |
| aagggctaga | acctggaggg | ctggaatctg | gagagctaga | acctggaggg | ctagaacctg | 2940 |
| gagggctaga | acctagaagg | gctagaacct | ggagggctag | aacctggcag | gttagaacct | 3000 |
| agaagggcta | gaacctggag | agccagaacc | tggagggcta | gaacctggaa | gggctagaac | 3060 |
| ctgtagagct | agaacatgga | gagctagaac | ccggcaggct | agaacctggc | aagctagaac | 3120 |
| ctggagggaa | tgaacctgga | gggctagaac | ctggagaatg | agaaaaattt | acatggcaaa | 3180 |
| gagcccataa | atcctgacca | atccaactct | gaattttaaa | gcaaaagcgt | gaaaaaaaag | 3240 |
| attccctcct | tacccccaac | ccactctttt | ttcccaccac | ccactctcct | ctgcctcagt | 3300 |
| aagtatctgg | aggaagaaaa | caggtgaaag | aagaagtaaa | aaccatttag | tattagtatt | 3360 |
| agaatgaagt | caaactgtgc | cacacatggt | gaatgaaaaa | aaaaaaaag  | aggctgtgtt | 3420 |
| ttgtcacaca | gggcagtcat | tcagcaccag | agcacgtgat | ggtctgagac | tctcttagga | 3480 |
| gcagagctct | gccgcaatgg | ccatgtgggg | atccacacct | ggtctgaggg | gcaactgagt | 3540 |
| ctgcgggaga | agagcggccc | tatgcatggt | gtagatgccc | tgataaagaa | catctgtcct | 3600 |
| gtgaaagact | caatgagctg | ttatgttgta | aacaggaagc | atttcacatc | caaacgagaa | 3660 |

| aatcatgtaa | acatgtgtct | tttctgtaga | gcataataaa | tggatgaggt | ttttgcaaaa | 3720 |
|------------|------------|------------|------------|------------|------------|------|
| aaaaaaaaa  | aaa        |            |            |            |            | 3733 |

| <210> | 564                                   |
|-------|---------------------------------------|
| <211> | 391                                   |
| <212> | PRT                                   |
| <213> | Homo sapiens                          |
|       |                                       |
| <220> |                                       |
| <221> | VARIANT                               |
| <222> | (14)(14)                              |
| <223> | wherein Xaa is either "Arg" or "Cys". |
|       |                                       |

<400> 564

Met Phe Ser Pro Trp Lys Ile Ser Met Phe Leu Ser Val Cys Glu Asp 1 5 10 15

Ser Val Pro Thr Thr Ala Ser Phe Ser Ala Asp Met Leu Asn Val Thr 20 25 30

Leu Gln Gly Pro Thr Leu Asn Gly Thr Phe Ala Gln Ser Lys Cys Pro 35 40 45

Gln Val Glu Trp Leu Gly Trp Leu Asn Thr Ile Gln Pro Pro Phe Leu 50 55 60

Trp Val Leu Phe Val Leu Ala Thr Leu Glu Asn Ile Phe Val Leu Ser 65 70 75 80

Val Phe Cys Leu His Lys Ser Ser Cys Thr Val Ala Glu Ile Tyr Leu 85 90 95

Gly Asn Leu Ala Ala Ala Asp Leu Ile Leu Ala Cys Gly Leu Pro Phe 100 105 110

Trp Ala Ile Thr Ile Ser Asn Asn Phe Asp Trp Leu Phe Gly Glu Thr 115 120 125

Leu Cys Arg Val Val Asn Ala Ile Ile Ser Met Asn Leu Tyr Ser Ser 130 135 140

Ile Cys Phe Leu Met Leu Val Ser Ile Asp Arg Tyr Leu Ala Leu Val 145 150 155 160

Lys Thr Met Ser Met Gly Arg Met Arg Gly Val Arg Trp Ala Lys Leu 165 170 175

Tyr Ser Leu Val Ile Trp Gly Cys Thr Leu Leu Leu Ser Ser Pro Met 180 185 190

Leu Val Phe Arg Thr Met Lys Glu Tyr Ser Asp Glu Gly His Asn Val 195 200 205

| Thr Ala Cys Val Ile Ser Tyr Pro Ser Leu Ile Trp Glu Val Phe Thr 210 215 220         |  |  |  |  |  |  |  |  |  |  |
|---|--|--|--|--|--|--|--|--|--|--|
| Asn Met Leu Leu Asn Val Val Gly Phe Leu Leu Pro Leu Ser Val Ile<br>225 230 235 240  |  |  |  |  |  |  |  |  |  |  |
| Thr Phe Cys Thr Met Gln Ile Met Gln Val Leu Arg Asn Asn Glu Met 245 250 255         |  |  |  |  |  |  |  |  |  |  |
| Gln Lys Phe Lys Glu Ile Gln Thr Glu Arg Arg Ala Thr Val Leu Val<br>260 265 270      |  |  |  |  |  |  |  |  |  |  |
| Leu Val Val Leu Leu Phe Ile Ile Cys Trp Leu Pro Phe Gln Ile<br>275 280 285          |  |  |  |  |  |  |  |  |  |  |
| Ser Thr Phe Leu Asp Thr Leu His Arg Leu Gly Ile Leu Ser Ser Cys<br>290 295 300      |  |  |  |  |  |  |  |  |  |  |
| Gln Asp Glu Arg Ile Ile Asp Val Ile Thr Gln Ile Ala Ser Phe Met 305 310 315 320     |  |  |  |  |  |  |  |  |  |  |
| Ala Tyr Ser Asn Ser Cys Leu Asn Pro Leu Val Tyr Val Ile Val Gly 325 330 335         |  |  |  |  |  |  |  |  |  |  |
| Lys Arg Phe Arg Lys Lys Ser Trp Glu Val Tyr Gln Gly Val Cys Gln 340 345 350         |  |  |  |  |  |  |  |  |  |  |
| Lys Gly Gly Cys Arg Ser Glu Pro Ile Gln Met Glu Asn Ser Met Gly 355 360 365         |  |  |  |  |  |  |  |  |  |  |
| Thr Leu Arg Thr Ser Ile Ser Val Glu Arg Gln Ile His Lys Leu Gln<br>370 375 380      |  |  |  |  |  |  |  |  |  |  |
| Asp Trp Ala Gly Ser Arg Gln<br>385 390  |  |  |  |  |  |  |  |  |  |  |
| <210> 565<br><211> 3733<br><212> DNA<br><213> Homo sapiens                          |  |  |  |  |  |  |  |  |  |  |
| <220> <221> misc_feature <222> (933)(933) <223> wherein N is either a "T" or a "C". |  |  |  |  |  |  |  |  |  |  |
| <400> 565 atgttctctc cctggaagat atcaatgttt ctgtctgttc gtgaggactc cgtgcccacc         |  |  |  |  |  |  |  |  |  |  |
| acggcctctt tcagcgccga catgctcaat gtcaccttgc aagggcccac tcttaacggg                   |  |  |  |  |  |  |  |  |  |  |

acctttgccc agagcaaatg cccccaagtg gagtggctgg gctggctcaa caccatccag

cccccttcc tctgggtgct gttcgtgctg gccaccctag agaacatctt tgtcctcagc

gtcttctgcc tgcacaagag cagctgcacg gtggcagaga tctacctggg gaacctggcc

60

120

180

240

300

| gcagcagacc | : tgatcctggc | ctgcgggctg | cccttctggg | ccatcaccat | ctccaacaac | 360  |
|------------|--------------|------------|------------|------------|------------|------|
| ttcgactggc | : tctttgggga | gacgctctgc | cgcgtggtga | atgccattat | ctccatgaac | 420  |
| ctgtacagca | gcatctgttt   | cctgatgctg | gtgagcatcg | accgctacct | ggccctggtg | 480  |
| aaaaccatgt | ccatgggccg   | gatgcgcggc | gtgcgctggg | ccaagctcta | cagcttggtg | 540  |
| atctgggggt | gtacgctgct   | cctgagctca | cccatgctgg | tgttccggac | catgaaggag | 600  |
| tacagcgatg | agggccacaa   | cgtcaccgct | tgtgtcatca | gctacccatc | cctcatctgg | 660  |
| gaagtgttca | ccaacatgct   | cctgaatgtc | gtgggcttcc | tgctgcccct | gagtgtcatc | 720  |
| accttctgca | cgatgcagat   | catgcaggtg | ctgcggaaca | acgagatgca | gaagttcaag | 780  |
| gagatccaga | cggagaggag   | ggccacggtg | ctagtcctgg | ttgtgctgct | gctattcatc | 840  |
| atctgctggc | tgcccttcca   | gatcagcacc | ttcctggata | cgctgcatcg | cctcggcatc | 900  |
| ctctccagct | gccaggacga   | gcgcatcatc | gacgtaatca | cacagatcgc | ctccttcatg | 960  |
| gcctacagca | acagctgcct   | caacccactg | gtgtacgtga | tcgtgggcaa | gcgcttccga | 1020 |
| aagaagtctt | gggaggtgta   | ccagggagtg | tgccagaaag | ggggctgcag | gtcagaaccc | 1080 |
| attcagatgg | agaactccat   | gggcacactg | cggacctcca | tctccgtgga | acgccagatt | 1140 |
| cacaaactgc | aggactgggc   | agggagcaga | cagtgagcaa | acgccagcag | ggctgctgtg | 1200 |
| aatttgtgta | aggattgagg   | gacagttgct | tttcagcatg | ggcccaggaa | tgccaaggag | 1260 |
| acatctatgc | acgaccttgg   | gaaatgagtt | gatgtctccg | gtaaaacacc | ggagactaat | 1320 |
| tectgecetg | cccaattttg   | cagggagcat | ggctgtgagg | atggggtgaa | ctcacgcaca | 1380 |
| gccaaggact | ccaaaatcac   | aacagcatta | ctgttcttat | ttgctgccac | acctgagcca | 1440 |
| gcctgctcct | tcccaggagt   | ggaggaggcc | tggggggagg | gagaggagtg | actgagcttc | 1500 |
| cctcccgtgt | gttctccgtc   | cctgccccag | caagacaact | tagatctcca | ggagaactgc | 1560 |
| catccagctt | tggtgcaatg   | gctgagtgca | caagtgagtt | gttgccctgg | gtttctttaa | 1620 |
| tctattcagc | tagaactttg   | aaggacaatt | tcttgcatta | ataaaggtta | agccctgagg | 1680 |
| ggtccctgat | aacaacctgg   | agaccaggat | tttatggctc | ccctcactga | tggacaagga | 1740 |
| ggtctgtgcc | aaagaagaat   | ccaataagca | catattgagc | acttgctgta | tatgcagtat | 1800 |
| tgagcactgt | aggcaagacc   | caagaaagag | aaggagccat | ctccatcttg | aaggaactca | 1860 |
| aagactcaag | tgggaacgac   | tgggcactgc | caccaccaga | aagctgttcg | acgagacggt | 1920 |
| cgagcagggt | gctgtgggtg   | atatggacag | cagaaggggg | agaccaaggt | tccagctcaa | 1980 |

ccaataacta ttgcacaacc acctgtccct gcctcagttc ccttttatgt aacatgaagt 2040 2100 cgttgtgagg gttaaaggca gtaacaggta taaagtactt agaaaagcaa agggtgctac gtacatgtga ggcatcatta cgcagacgta actgggatat gtttactata aggaaaagac 2160 2220 actgaggtct agaaatagct ccgtggagca gaatcagtat tgggagccgg tggcggtgtg 2280 aagcaccagt gtctggcaca cagtaggtgc tcattggctc ccttccacct gtcattccca ccaccctgag gccccaaccg ccacacaca aggagcattt ggagagaagg ccatgtcttc 2340 aaagtctgat ttgtgatgag gcagaggaag atatttctaa tcggtcttgc ccagaggatc 2400 acagtgctga gacccccac caccagccgg tacctgggaa gggggagagt gcaggcctgc 2460 tcagggactg ttcctgtctc agcaaccaag ggattgttcc tgtcaatcaa tggtttattg 2520 gaaggtggcc cagtatgagc cctagaagag tgtgaaaagg aatggcaatg gtgttcacca 2580 tcggcagtgc cagggcagca ctcattcact tgataaatga atatttatta gctggttgga 2640 2700 gagctagaac ctggagagct agaacctgga gaactagaac ctggagggct agaacctgga 2760 gaggctagaa ccaagaaggg ctagaacctg gaggggctag aacctagaga agctaaaacc 2820 tgagctagaa gctggaggac tagaacctgg agggctggaa tctgaagggc tagaacctgg agggctggaa tctggagagc tagaacctgg agggctagaa cctggagggc tagaacctag 2880 2940 aagggctaga acctggaggg ctggaatctg gagagctaga acctggaggg ctagaacctg 3000 gagggctaga acctagaagg gctagaacct ggagggctag aacctggcag gttagaacct 3060 agaagggcta gaacctggag agccagaacc tggagggcta gaacctggaa gggctagaac ctgtagagct agaacatgga gagctagaac ccggcaggct agaacctggc aagctagaac 3120 ctggagggaa tgaacctgga gggctagaac ctggagaatg agaaaaattt acatggcaaa 3180 gagcccataa atcctgacca atccaactct gaattttaaa gcaaaagcgt gaaaaaaaag 3240 attocctcct tacccccaac ccactctttt ttcccaccac ccactctcct ctgcctcagt 3300 3360 aagtatctgg aggaagaaaa caggtgaaag aagaagtaaa aaccatttag tattagtatt 3420 agaatgaagt caaactgtgc cacacatggt gaatgaaaaa aaaaaaaaag aggctgtgtt 3480 ttgtcacaca gggcagtcat tcagcaccag agcacgtgat ggtctgagac tctcttagga 3540 gcagagetet geegeaatgg ceatgtgggg atceacacet ggtetgaggg geaactgagt ctgcgggaga agagcggccc tatgcatggt gtagatgccc tgataaagaa catctgtcct 3600 3660 gtgaaagact caatgagctg ttatgttgta aacaggaagc atttcacatc caaacgagaa 3720 aatcatgtaa acatgtgtct tttctgtaga gcataataaa tggatgaggt ttttgcaaaa

aaaaaaaaa aaa 3733

| <210<br><211<br><212<br><213 | .><br>?>   | 566<br>391<br>PRT<br>Homo | sapi       | lens       |            |            |            |            |            |            |            |            |            |            |            |
|------------------------------|------------|---------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| <400                         | )·>        | 566                       |            |            |            |            |            |            |            |            |            |            |            |            |            |
| Met<br>1                     | Phe        | Ser                       | Pro        | Trp<br>5   | Lys        | Ile        | Ser        | Met        | Phe<br>10  | Leu        | Ser        | Val        | Arg        | Glu<br>15  | Asp        |
| Ser                          | Val        | Pro                       | Thr<br>20  | Thr        | Ala        | Ser        | Phe        | Ser<br>25  | Ala        | Asp        | Met        | Leu        | Asn<br>30  | Val        | Thr        |
| Leu                          | Gln        | Gly<br>35                 | Pro        | Thr        | Leu        | Asn        | Gly<br>40  | Thr        | Phe        | Ala        | Gln        | Ser<br>45  | Lys        | Cys        | Pro        |
| Gln                          | Val<br>50  | Glu                       | Trp        | Leu        | Gly        | Trp<br>55  | Leu        | Asn        | Thr        | Ile        | Gln<br>60  | Pro        | Pro        | Phe        | Leu        |
| Trp<br>65                    | Val        | Leu                       | Phe        | Val        | Leu<br>70  | Ala        | Thr        | Leu        | Glu        | Asn<br>75  | Ile        | Phe        | Val        | Leu        | Ser<br>80  |
| Val                          | Phe        | Cys                       | Leu        | His<br>85  | Lys        | Ser        | Ser        | Cys        | Thr<br>90  | Val        | Ala        | Glu        | Ile        | Tyr<br>95  | Leu        |
| Gly                          | Asn        | Leu                       | Ala<br>100 | Ala        | Ala        | Asp        | Leu        | Ile<br>105 | Leu        | Ala        | Cys        | Gly        | Leu<br>110 | Pro        | Phe        |
| Trp                          | Ala        | Ile<br>115                | Thr        | Ile        | Ser        | Asn        | Asn<br>120 | Phe        | Asp        | Trp        | Leu        | Phe<br>125 | Gly        | Glu        | Thr        |
| Leu                          | Cys<br>130 | Arg                       | Val        | Val        | Asn        | Ala<br>135 | Ile        | Ile        | Ser        | Met        | Asn<br>140 | Leu        | Tyr        | Ser        | Ser        |
| Ile<br>145                   | Cys        | Phe                       | Leu        | Met        | Leu<br>150 | Val        | Ser        | Ile        | Asp        | Arg<br>155 | Tyr        | Leu        | Ala        | Leu        | Val<br>160 |
| Lys                          | Thr        | Met                       | Ser        | Met<br>165 | Gly        | Arg        | Met        | Arg        | Gly<br>170 | Val        | Arg        | Trp        | Ala        | Lys<br>175 | Leu        |
| Tyr                          | Ser        | Leu                       | Val<br>180 | Ile        | Trp        | Gly        | Cys        | Thr<br>185 | Leu        | Leu        | Leu        | Ser        | Ser<br>190 | Pro        | Met        |
| Leu                          | Val        | Phe<br>195                | Arg        | Thr        | Met        | Lys        | Glu<br>200 | Tyr        | Ser        | Asp        | Glu        | Gly<br>205 | His        | Asn        | Val        |
| Thr                          | Ala<br>210 | Суз                       | Val        | Ile        | Ser        | Tyr<br>215 | Pro        | Ser        | Leu        | Ile        | Trp<br>220 | Glu        | Val        | Phe        | Thr        |
| Asn<br>225                   | Met        | Leu                       | Leu        | Asn        | Val<br>230 | Val        | Gly        | Phe        | Leu        | Leu<br>235 | Pro        | Leu        | Ser        | Val        | Ile<br>240 |
| Thr                          | Phe        | Cys                       | Thr        | Met        | Gln        | Ile        | Met        | Gln        | Val        | Leu        | Arg        | Asn        | Asn        | Glu        | Met        |

|  | 245                | 250                |                    | 255                |  |  |  |  |  |  |
|--|--------------------|--------------------|--------------------|--------------------|--|--|--|--|--|--|
| Gln Lys Phe Lys<br>260                                     |                    | Thr Glu Arg<br>265 | Arg Ala Thr        | Val Leu Val<br>270 |  |  |  |  |  |  |
| Leu Val Val Leu<br>275                                     | Leu Leu Phe        | Ile Ile Cys<br>280 | Trp Leu Pro<br>285 | Phe Gln Ile        |  |  |  |  |  |  |
| Ser Thr Phe Leu<br>290                                     | Asp Thr Leu<br>295 | His Arg Leu        | Gly Ile Leu<br>300 | Ser Ser Cys        |  |  |  |  |  |  |
| Gln Asp Glu Arg<br>305                                     | Ile Ile Asp<br>310 | Val Ile Thr        | Gln Ile Ala<br>315 | Ser Phe Met 320    |  |  |  |  |  |  |
| Ala Tyr Ser Asn  | Ser Cys Leu<br>325 | Asn Pro Leu<br>330 | Val Tyr Val        | Ile Val Gly<br>335 |  |  |  |  |  |  |
| Lys Arg Phe Arg<br>340                                     | Lys Lys Ser        | Trp Glu Val<br>345 | Tyr Gln Gly        | Val Cys Gln<br>350 |  |  |  |  |  |  |
| Lys Gly Gly Cys<br>355                                     | Arg Ser Glu        | Pro Ile Gln<br>360 | Met Glu Asn<br>365 | Ser Met Gly        |  |  |  |  |  |  |
| Thr Leu Arg Thr<br>370                                     | Ser Ile Ser<br>375 | Val Glu Arg        | Gln Ile His<br>380 | Lys Leu Gln        |  |  |  |  |  |  |
| Asp Trp Ala Gly<br>385                                     | Ser Arg Gln<br>390 |                    |                    |                    |  |  |  |  |  |  |
| <210> 567<br><211> 3733<br><212> DNA<br><213> Homo sapiens |                    |                    |                    |                    |  |  |  |  |  |  |
| <220> <221> misc_fea <222> (1061) <223> wherein            |                    | a "G" or an '      | 'A".               |                    |  |  |  |  |  |  |
| <400> 567 atgttctctc cctg                                  | gaagat atgaat      |                    |                    |                    |  |  |  |  |  |  |
| arguitted Colg   | yaayat atcaat      | yılı cigici        | jilo gtgaggad      | tc cgtgcccacc      |  |  |  |  |  |  |

atgitetete cetggaagat atcaatgitt etgietgite gigaggaete egigeeace 60
acggeetett teagegeega catgeteaat gieacetige aagggeeeac tettaaeggg 120
acettigeee agageaaatg eeceeaagig gagtggetgg getggeteaa caceateeag 180
ceeceetiee teigggiget gitegigetg geeaceetag agaacateit tgieeteage 240
giettetgee tgeacaagag eagetgeaeg giggeagaga tetacetggg gaacetggee 300
geageagaee tgateetgge etgegggetg eeetteiggg eeateaceat etceaacaac 360
tiegaetgge teitigggga gaegetetge egegtggtga atgeeateat etceatgaac 420
etgiacagea geatetgitt eetgatgetg gigageateg aeegetaeet ggeeetggtg

| aaaaccatgt | ccatgggccg | gatgcgcggc | gtgcgctggg | r ccaagctcta | cagcttggtg | 540  |
|------------|------------|------------|------------|--------------|------------|------|
| atctgggggt | gtacgctgct | cctgagctca | cccatgctgg | tgttccggac   | catgaaggag | 600  |
| tacagcgatg | agggccacaa | cgtcaccgct | tgtgtcatca | gctacccatc   | cctcatctgg | 660  |
| gaagtgttca | ccaacatgct | cctgaatgtc | gtgggcttcc | tgctgcccct   | gagtgtcatc | 720  |
| accttctgca | cgatgcagat | catgcaggtg | ctgcggaaca | acgagatgca   | gaagttcaag | 780  |
| gagatccaga | cggagaggag | ggccacggtg | ctagtcctgg | ttgtgctgct   | gctattcatc | 840  |
| atctgctggc | tgcccttcca | gatcagcacc | ttcctggata | cgctgcatcg   | cctcggcatc | 900  |
| ctctccagct | gccaggacga | gcgcatcatc | gatgtaatca | cacagatcgc   | ctccttcatg | 960  |
| gcctacagca | acagctgcct | caacccactg | gtgtacgtga | tcgtgggcaa   | gcgcttccga | 1020 |
| aagaagtctt | gggaggtgta | ccagggagtg | tgccagaaag | agggctgcag   | gtcagaaccc | 1080 |
| attcagatgg | agaactccat | gggcacactg | cggacctcca | tctccgtgga   | acgccagatt | 1140 |
| cacaaactgc | aggactgggc | agggagcaga | cagtgagcaa | acgccagcag   | ggctgctgtg | 1200 |
| aatttgtgta | aggattgagg | gacagttgct | tttcagcatg | ggcccaggaa   | tgccaaggag | 1260 |
| acatctatgc | acgaccttgg | gaaatgagtt | gatgtctccg | gtaaaacacc   | ggagactaat | 1320 |
| tcctgccctg | cccaattttg | cagggagcat | ggctgtgagg | atggggtgaa   | ctcacgcaca | 1380 |
| gccaaggact | ccaaaatcac | aacagcatta | ctgttcttat | ttgctgccac   | acctgagcca | 1440 |
| gcctgctcct | tcccaggagt | ggaggaggcc | tggggggagg | gagaggagtg   | actgagcttc | 1500 |
| cctcccgtgt | gttctccgtc | cctgccccag | caagacaact | tagateteca   | ggagaactgc | 1560 |
| catccagctt | tggtgcaatg | gctgagtgca | cąagtgagtt | gttgccctgg   | gtttctttaa | 1620 |
| tctattcagc | tagaactttg | aaggacaatt | tcttgcatta | ataaaggtta   | agccctgagg | 1680 |
| ggtccctgat | aacaacctgg | agaccaggat | tttatggctc | ccctcactga   | tggacaagga | 1740 |
| ggtctgtgcc | aaagaagaat | ccaataagca | catattgagc | acttgctgta   | tatgcagtat | 1800 |
| tgagcactgt | aggcaagacc | caagaaagag | aaggagccat | ctccatcttg   | aaggaactca | 1860 |
| aagactcaag | tgggaacgac | tgggcactgc | caccaccaga | aagctgttcg   | acgagacggt | 1920 |
| cgagcagggt | gctgtgggtg | atatggacag | cagaaggggg | agaccaaggt   | tccagctcaa | 1980 |
| ccaataacta | ttgcacaacc | acctgtccct | gcctcagttc | ccttttatgt   | aacatgaagt | 2040 |
| cgttgtgagg | gttaaaggca | gtaacaggta | taaagtactt | agaaaagcaa   | agggtgctac | 2100 |
| gtacatgtga | ggcatcatta | cgcagacgta | actgggatat | gtttactata   | aggaaaagac | 2160 |
| actgaggtct | agaaatagct | ccgtggagca | gaatcagtat | tgggagccgg   | tggcggtgtg | 2220 |

| aagcaccagt | gtctggcaca | cagtaggtgc | tcattggctc | ccttccacct | gtcattccca | 2280 |
|------------|------------|------------|------------|------------|------------|------|
| ccaccctgag | gccccaaccg | ccacacacac | aggagcattt | ggagagaagg | ccatgtcttc | 2340 |
| aaagtctgat | ttgtgatgag | gcagaggaag | atatttctaa | teggtettge | ccagaggatc | 2400 |
| acagtgctga | gaccccccac | caccageegg | tacctgggaa | gggggagagt | gcaggcctgc | 2460 |
| tcagggactg | ttcctgtctc | agcaaccaag | ggattgttcc | tgtcaatcaa | tggtttattg | 2520 |
| gaaggtggcc | cagtatgagc | cctagaagag | tgtgaaaagg | aatggcaatg | gtgttcacca | 2580 |
| tcggcagtgc | cagggcagca | ctcattcact | tgataaatga | atatttatta | gctggttgga | 2640 |
| gagctagaac | ctggagagct | agaacctgga | gaactagaac | ctggagggct | agaacctgga | 2700 |
| gaggctagaa | ccaagaaggg | ctagaacctg | gaggggctag | aacctagaga | agctaaaacc | 2760 |
| tgagctagaa | gctggaggac | tagaacctgg | agggctggaa | tctgaagggc | tagaacctgg | 2820 |
| agggctggaa | tctggagagc | tagaacctgg | agggctagaa | cctggagggc | tagaacctag | 2880 |
| aagggctaga | acctggaggg | ctggaatctg | gagagctaga | acctggaggg | ctagaacctg | 2940 |
| gagggctaga | acctagaagg | gctagaacct | ggagggctag | aacctggcag | gttagaacct | 3000 |
| agaagggcta | gaacctggag | agccagaacc | tggagggcta | gaacctggaa | gggctagaac | 3060 |
| ctgtagagct | agaacatgga | gagctagaac | ccggcaggct | agaacctggc | aagctagaac | 3120 |
| ctggagggaa | tgaacctgga | gggctagaac | ctggagaatg | agaaaaattt | acatggcaaa | 3180 |
| gagcccataa | atcctgacca | atccaactct | gaattttaaa | gcaaaagcgt | gaaaaaaaag | 3240 |
| attccctcct | tacccccaac | ccactctttt | ttcccaccac | ccactctcct | ctgcctcagt | 3300 |
| aagtatctgg | aggaagaaaa | caggtgaaag | aagaagtaaa | aaccatttag | tattagtatt | 3360 |
| agaatgaagt | caaactgtgc | cacacatggt | gaatgaaaaa | aaaaaaaag  | aggctgtgtt | 3420 |
| ttgtcacaca | gggcagtcat | tcagcaccag | agcacgtgat | ggtctgagac | tctcttagga | 3480 |
| gcagagctct | gccgcaatgg | ccatgtgggg | atccacacct | ggtctgaggg | gcaactgagt | 3540 |
| ctgcgggaga | agagcggccc | tatgcatggt | gtagatgccc | tgataaagaa | catctgtcct | 3600 |
| gtgaaagact | caatgagctg | ttatgttgta | aacaggaagc | atttcacatc | caaacgagaa | 3660 |
| aatcatgtaa | acatgtgtct | tttctgtaga | gcataataaa | tggatgaggt | ttttgcaaaa | 3720 |
| aaaaaaaaaa | aaa        |            |            |            |            | 3733 |

<sup>&</sup>lt;210> 568 <211> 391 <212> PRT

<213> Homo sapiens

<220>

<221> VARIANT

<222> (354)..(354)

<223> wherein Xaa is either "Gly" or "Glu".

<400> 568

Ser Val Pro Thr Thr Ala Ser Phe Ser Ala Asp Met Leu Asn Val Thr 20 25 30

Leu Gln Gly Pro Thr Leu Asn Gly Thr Phe Ala Gln Ser Lys Cys Pro 35 40 45

Gln Val Glu Trp Leu Gly Trp Leu Asn Thr Ile Gln Pro Pro Phe Leu 50 55 60

Trp Val Leu Phe Val Leu Ala Thr Leu Glu Asn Ile Phe Val Leu Ser 65 70 75 80

Val Phe Cys Leu His Lys Ser Ser Cys Thr Val Ala Glu Ile Tyr Leu 85 90 95

Gly Asn Leu Ala Ala Ala Asp Leu Ile Leu Ala Cys Gly Leu Pro Phe 100 105 110

Trp Ala Ile Thr Ile Ser Asn Asn Phe Asp Trp Leu Phe Gly Glu Thr
115 120 125

Leu Cys Arg Val Val Asn Ala Ile Ile Ser Met Asn Leu Tyr Ser Ser 130 135 140

Lys Thr Met Ser Met Gly Arg Met Arg Gly Val Arg Trp Ala Lys Leu 165 170 175

Tyr Ser Leu Val Ile Trp Gly Cys Thr Leu Leu Leu Ser Ser Pro Met 180 185 190

Leu Val Phe Arg Thr Met Lys Glu Tyr Ser Asp Glu Gly His Asn Val 195 200 205

Thr Ala Cys Val Ile Ser Tyr Pro Ser Leu Ile Trp Glu Val Phe Thr 210 215 220

Asn Met Leu Leu Asn Val Val Gly Phe Leu Leu Pro Leu Ser Val Ile 225 230 235 240

Thr Phe Cys Thr Met Gln Ile Met Gln Val Leu Arg Asn Asn Glu Met 245 250 255

| Gln Lys Phe Lys Glu Ile Gln Thr Glu Arg Arg Ala Thr Val Leu Val<br>260 265 270  |                                 |
|---|---------------------------------|
| Leu Val Val Leu Leu Phe Ile Ile Cys Trp Leu Pro Phe Gln Ile<br>275 280 285  |                                 |
| Ser Thr Phe Leu Asp Thr Leu His Arg Leu Gly Ile Leu Ser Ser Cys<br>290 295 300  |                                 |
| Gln Asp Glu Arg Ile Ile Asp Val Ile Thr Gln Ile Ala Ser Phe Met 305 310 315 320   |                                 |
| Ala Tyr Ser Asn Ser Cys Leu Asn Pro Leu Val Tyr Val Ile Val Gly 325 330 335   |                                 |
| Lys Arg Phe Arg Lys Lys Ser Trp Glu Val Tyr Gln Gly Val Cys Gln 340 345 350   |                                 |
| Lys Glu Gly Cys Arg Ser Glu Pro Ile Gln Met Glu Asn Ser Met Gly 355 360 365   |                                 |
| Thr Leu Arg Thr Ser Ile Ser Val Glu Arg Gln Ile His Lys Leu Gln 370 375 380   |                                 |
| Asp Trp Ala Gly Ser Arg Gln<br>385 390  |                                 |
| <210> 569<br><211> 3405<br><212> DNA<br><213> Homo sapiens  |                                 |
| <400> 569   |                                 |
| cgcccaaccc aagttcaaag gctgataaga gagaaaatct catgaggagg ttttagtcta   | 60                              |
| gggaaagtca ttcagtggat gtgatcttgg ctcacagggg acgatgtcaa gctcttcctg   | 120                             |
| gctccttctc agccttgttg ctgtaactgc tgctcagtcc accattgagg aacaggccaa   | 180                             |
| gacatttttg gacaagttta accacgaagc cgaagacctg ttctatcaaa gttcacttgc   | 240                             |
| ttcttggaat tataacacca atattactga agagaatgtc caaaacatga ataatgctgg   | 200                             |
|   | 300                             |
| ggacaaatgg tetgeetttt taaaggaaca gteeacaett geecaaatgt ateeactaea   | 360                             |
| agaaattcag aatctcacag tcaagcttca gctgcaggct cttcagcaaa atgggtcttc   | 360<br>420                      |
| agaaattcag aatctcacag tcaagcttca gctgcaggct cttcagcaaa atgggtcttc   | 360<br>420<br>480               |
| agaaattcag aatctcacag tcaagcttca gctgcaggct cttcagcaaa atgggtcttc agtgctctca gaagacaaga gcaaacggtt gaacacaatt ctaaatacaa tgagcaccat ctacagtact ggaaaagttt gtaacccaga taatccacaa gaatgcttat tacttgaacc   | 360<br>420<br>480<br>540        |
| agaaattcag aatctcacag tcaagcttca gctgcaggct cttcagcaaa atgggtcttc agtgctctca gaagacaaga gcaaacggtt gaacacaatt ctaaatacaa tgagcaccat ctacagtact ggaaaagttt gtaacccaga taatccacaa gaatgcttat tacttgaacc aggtttgaat gaaataatgg caaacagttt agactacaat gagaggctct gggcttggga | 360<br>420<br>480<br>540<br>600 |
| agaaattcag aatctcacag tcaagcttca gctgcaggct cttcagcaaa atgggtcttc agtgctctca gaagacaaga gcaaacggtt gaacacaatt ctaaatacaa tgagcaccat ctacagtact ggaaaagttt gtaacccaga taatccacaa gaatgcttat tacttgaacc   | 360<br>420<br>480<br>540        |

780 ctatgaagta aatggggtag atggctatga ctacagccgc ggccagttga ttgaagatgt 840 ggaacatacc tttgaagaga ttaaaccatt atatgaacat cttcatgcct atgtgagggc 900 aaagttgatg aatgcctatc cttcctatat cagtccaatt ggatgcctcc ctgctcattt gcttggtgat atgtggggta gattttggac aaatctgtac tctttgacag ttccctttgg 960 acagaaacca aacatagatg ttactgatgc aatggtggac caggcctggg atgcacagag 1020 1080 aatattcaag gaggccgaga agttctttgt atctgttggt cttcctaata tgactcaagg 1140 attctgggaa aattccatgc taacggaccc aggaaatgtt cagaaagcag tctgccatcc 1200 cacagcttgg gacctgggga agggcgactt caggatcctt atgtgcacaa aggtgacaat 1260 ggacgacttc ctgacagctc atcatgagat ggggcatatc cagtatgata tggcatatgc 1320 tgcacaacct tttctgctaa gaaatggagc taatgaagga ttccatgaag ctgttgggga 1380 aatcatgtca ctttctgcag ccacacctaa gcatttaaaa tccattggtc ttctgtcacc 1440 cgattttcaa gaagacaatg aaacagaaat aaacttcctg ctcaaacaag cactcacgat 1500 tgttgggact ctgccattta cttacatgtt agagaagtgg aggtggatgg tctttaaagg ggaaattccc aaagaccagt ggatgaaaaa gtggtgggag atgaagcgag agatagttgg 1560 1620 ggtggtggaa cctgtgcccc atgatgaaac atactgtgac cccgcatctc tgttccatgt 1680 ttctaatgat tactcattca ttcgatatta cacaaggacc ctttaccaat tccagtttca 1740 agaagcactt tgtcaagcag ctaaacatga aggccctctg cacaaatgtg acatctcaaa 1800 ctctacagaa gctggacaga aactgttcaa tatgctgagg cttggaaaat cagaaccctg 1860 gaccctagca ttggaaaatg ttgtaggagc aaagaacatg aatgtaaggc cactgctcaa 1920 ctactttgag cccttattta cctggctgaa agaccagaac aagaattctt ttgtgggatg 1980 gagtaccgac tggagtccat atgcagacca aagcatcaaa gtgaggataa gcctaaaatc agctcttgga gataaagcat atgaatggaa cgacaatgaa atgtacctgt tccgatcatc 2040 2100 tgttgcatat gctatgaggc agtacttttt aaaagtaaaa aatcagatga ttctttttgg 2160 ggaggaggat gtgcgagtgg ctaatttgaa accaagaatc tcctttaatt tctttgtcac 2220 tgcacctaaa aatgtgtctg atatcattcc tagaactgaa gttgaaaagg ccatcaggat 2280 gtcccggagc cgtatcaatg atgctttccg tctgaatgac aacagcctag agtttctggg gatacagcca acacttggac ctcctaacca gccccctgtt tccatatggc tgattgtttt 2340 tggagttgtg atgggagtga tagtggttgg cattgtcatc ctgatcttca ctgggatcag 2400

| agatcggaag | aagaaaaata | aagcaagaag | tggagaaaat | ccttatgcct | ccatcgatat | 2460 |
|------------|------------|------------|------------|------------|------------|------|
| tagcaaagga | gaaaataatc | caggattcca | aaacactgat | gatgttcaga | cctcctttta | 2520 |
| gaaaaatcta | tgtttttcct | cttgaggtga | ttttgttgta | tgtaaatgtt | aatttcatgg | 2580 |
| tatagaaaat | ataagatgat | aaagatatca | ttaaatgtca | aaactatgac | tctgttcaga | 2640 |
| aaaaaaattg | tccaaagaca | acatggccaa | ggagagagca | tcttcattga | cattgctttc | 2700 |
| agtatttatt | tctgtctctg | gatttgactt | ctgttctgtt | tcttaataag | gattttgtat | 2760 |
| tagagtatat | tagggaaagt | gtgtatttgg | tctcacaggc | tgttcaggga | taatctaaat | 2820 |
| gtaaatgtct | gttgaatttc | tgaagttgaa | aacaaggata | tatcattgga | gcaagtgttg | 2880 |
| gatcttgtat | ggaatatgga | tggatcactt | gtaaggacag | tgcctgggaa | ctggtgtagc | 2940 |
| tgcaaggatt | gagaatggca | tgcattagct | cactttcatt | taatccattg | tcaaggatga | 3000 |
| catgctttct | tcacagtaac | tcagttcaag | tactatggtg | atttgcctac | agtgatgttt | 3060 |
| ggaatcgatc | atgctttctt | caaggtgaca | ggtctaaaga | gagaagaatc | cagggaacag | 3120 |
| gtagaggaca | ttgcttttc  | acttccaagg | tgcttgatca | acatctccct | gacaacacaa | 3180 |
| aactagagcc | aggggcctcc | gtgaactccc | agagcatgcc | tgatagaaac | tcatttctac | 3240 |
| tgttctctaa | ctgtggagtg | aatggaaatt | ccaactgtat | gttcaccctc | tgaagtgggt | 3300 |
| acccagtctc | ttaaatcttt | tgtatttgct | cacagtgttt | gagcagtgct | gagcacaaag | 3360 |
| cagacactca | ataaatgcta | gatttacaca | ctcaaaaaaa | aaaaa      |            | 3405 |

<sup>&</sup>lt;210> 570

Met Ser Ser Ser Ser Trp Leu Leu Leu Ser Leu Val Ala Val Thr Ala 1 5 10 15

Ala Gln Ser Thr Ile Glu Glu Gln Ala Lys Thr Phe Leu Asp Lys Phe 20 25 30

Asn His Glu Ala Glu Asp Leu Phe Tyr Gln Ser Ser Leu Ala Ser Trp 35 40 45

Asn Tyr Asn Thr Asn Ile Thr Glu Glu Asn Val Gln Asn Met Asn Asn 50 55 60

Ala Gly Asp Lys Trp Ser Ala Phe Leu Lys Glu Gln Ser Thr Leu Ala 65 70 75 80

<sup>&</sup>lt;211> 805

<sup>&</sup>lt;212> PRT

<sup>&</sup>lt;213> Homo sapiens

<sup>&</sup>lt;400> 570

Gln Met Tyr Pro Leu Gln Glu Ile Gln Asn Leu Thr Val Lys Leu Gln Leu Gln Ala Leu Gln Gln Asn Gly Ser Ser Val Leu Ser Glu Asp Lys Ser Lys Arg Leu Asn Thr Ile Leu Asn Thr Met Ser Thr Ile Tyr Ser 120 Thr Gly Lys Val Cys Asn Pro Asp Asn Pro Gln Glu Cys Leu Leu 135 140 Glu Pro Gly Leu Asn Glu Ile Met Ala Asn Ser Leu Asp Tyr Asn Glu 150 155 Arg Leu Trp Ala Trp Glu Ser Trp Arg Ser Glu Val Gly Lys Gln Leu 165 170 Arg Pro Leu Tyr Glu Glu Tyr Val Val Leu Lys Asn Glu Met Ala Arg 180 185 Ala Asn His Tyr Glu Asp Tyr Gly Asp Tyr Trp Arg Gly Asp Tyr Glu 200 Val Asn Gly Val Asp Gly Tyr Asp Tyr Ser Arg Gly Gln Leu Ile Glu Asp Val Glu His Thr Phe Glu Glu Ile Lys Pro Leu Tyr Glu His Leu 230 235 His Ala Tyr Val Arg Ala Lys Leu Met Asn Ala Tyr Pro Ser Tyr Ile 245 250 Ser Pro Ile Gly Cys Leu Pro Ala His Leu Leu Gly Asp Met Trp Gly 265 Arg Phe Trp Thr Asn Leu Tyr Ser Leu Thr Val Pro Phe Gly Gln Lys 275 280 Pro Asn Ile Asp Val Thr Asp Ala Met Val Asp Gln Ala Trp Asp Ala 295 Gln Arg Ile Phe Lys Glu Ala Glu Lys Phe Phe Val Ser Val Gly Leu 310 Pro Asn Met Thr Gln Gly Phe Trp Glu Asn Ser Met Leu Thr Asp Pro 330 Gly Asn Val Gln Lys Ala Val Cys His Pro Thr Ala Trp Asp Leu Gly 340 Lys Gly Asp Phe Arg Ile Leu Met Cys Thr Lys Val Thr Met Asp Asp 360 Phe Leu Thr Ala His His Glu Met Gly His Ile Gln Tyr Asp Met Ala 370 375

Tyr Ala Ala Gln Pro Phe Leu Leu Arg Asn Gly Ala Asn Glu Gly Phe His Glu Ala Val Gly Glu Ile Met Ser Leu Ser Ala Ala Thr Pro Lys 410 His Leu Lys Ser Ile Gly Leu Leu Ser Pro Asp Phe Gln Glu Asp Asn 425 Glu Thr Glu Ile Asn Phe Leu Leu Lys Gln Ala Leu Thr Ile Val Gly 440 Thr Leu Pro Phe Thr Tyr Met Leu Glu Lys Trp Arg Trp Met Val Phe 455 Lys Gly Glu Ile Pro Lys Asp Gln Trp Met Lys Lys Trp Trp Glu Met 470 Lys Arg Glu Ile Val Gly Val Val Glu Pro Val Pro His Asp Glu Thr 485 490 Tyr Cys Asp Pro Ala Ser Leu Phe His Val Ser Asn Asp Tyr Ser Phe 505 Ile Arg Tyr Tyr Thr Arg Thr Leu Tyr Gln Phe Gln Phe Gln Glu Ala 520 Leu Cys Gln Ala Ala Lys His Glu Gly Pro Leu His Lys Cys Asp Ile 535 Ser Asn Ser Thr Glu Ala Gly Gln Lys Leu Phe Asn Met Leu Arg Leu 550 555 Gly Lys Ser Glu Pro Trp Thr Leu Ala Leu Glu Asn Val Val Gly Ala 570 Lys Asn Met Asn Val Arg Pro Leu Leu Asn Tyr Phe Glu Pro Leu Phe 585 Thr Trp Leu Lys Asp Gln Asn Lys Asn Ser Phe Val Gly Trp Ser Thr 600 Asp Trp Ser Pro Tyr Ala Asp Gln Ser Ile Lys Val Arg Ile Ser Leu 615 Lys Ser Ala Leu Gly Asp Lys Ala Tyr Glu Trp Asn Asp Asn Glu Met 630 635 Tyr Leu Phe Arg Ser Ser Val Ala Tyr Ala Met Arg Gln Tyr Phe Leu 645 Lys Val Lys Asn Gln Met Ile Leu Phe Gly Glu Glu Asp Val Arg Val 665 Ala Asn Leu Lys Pro Arg Ile Ser Phe Asn Phe Phe Val Thr Ala Pro 680

| Ι  | ıys                      | Asn<br>690 | Val                        | Ser        | Asp        | Ile        | Ile<br>695 | Pro        | Arg        | Thr        | Glu        | Val<br>700 | Glu        | Lys        | Ala        | Ile        |     |
|----|--------------------------|------------|----------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-----|
|    | Arg<br>705               | Met        | Ser                        | Arg        | Ser        | Arg<br>710 | Ile        | Asn        | Asp        | Ala        | Phe<br>715 | Arg        | Leu        | Asn        | Asp        | Asn<br>720 |     |
| \$ | Ser                      | Leu        | Glu                        | Phe        | Leu<br>725 | Gly        | Ile        | Gln        | Pro        | Thr<br>730 | Leu        | Gly        | Pro        | Pro        | Asn<br>735 | Gln        |     |
| 1  | Pro                      | Pro        | Val                        | Ser<br>740 | Ile        | Trp        | Leu        | Ile        | Val<br>745 | Phe        | Gly        | Val        | Val        | Met<br>750 | Gly        | Val        |     |
| ;  | Ile                      | Val        | Val<br>755                 | Gly        | Ile        | Val        | Ile        | Leu<br>760 | Ile        | Phe        | Thr        | Gly        | Ile<br>765 | Arg        | Asp        | Arg        |     |
| :  | Lys                      | Lys<br>770 |                            | Asn        | Lys        | Ala        | Arg<br>775 | Ser        | Gly        | Glu        | Asn        | Pro<br>780 | Tyr        | Ala        | Ser        | Ile        |     |
|    | Asp<br>785               | Ile        | Ser                        | Lys        | Gly        | Glu<br>790 | Asn        | Asn        | Pro        | Gly        | Phe<br>795 | Gln        | Asn        | Thr        | Asp        | Asp<br>800 |     |
|    | Val                      | Gln        | Thr                        | Ser        | Phe<br>805 |            |            |            |            |            |            |            |            |            |            |            |     |
|    | <21<br><21<br><21<br><21 | 1><br>2>   | 571<br>1284<br>DNA<br>Homo |            | oiens      |            |            |            |            |            |            |            |            |            |            |            |     |
|    | <40<br>atg               | 0><br>catc | 571<br>tta                 | tcga       | ctac       | ct g       | ctcc       | tcct       | g ct       | ggtt       | ggac       | tac        | tggc       | cct        | ttct       | catggc     | 60  |
|    |                          |            |                            |            |            |            |            |            |            |            |            |            |            |            |            | attctg     | 120 |
|    |                          |            |                            |            |            |            |            |            |            |            |            |            |            |            |            | gccttc     | 180 |
|    |                          |            |                            |            |            |            |            |            |            |            |            |            |            |            |            |            | 240 |
|    |                          |            |                            |            |            |            |            |            |            |            |            |            |            |            |            | ccgctg     |     |
|    | _                        |            |                            |            |            |            |            |            |            |            |            |            |            |            |            | agccag     | 300 |
|    | atc                      | cttg       | jagg                       | gcct       | gggc       | tt c       | aacc       | tcac       | c ga       | agcto      | tctg       | agt        | ccga       | tgt        | ccat       | aggggc     | 360 |
|    | ttc                      | cago       | cacc                       | tcct       | gcac       | ac t       | ctca       | acct       | c co       | cggc       | catg       | ggd        | tgga       | aaac       | acgo       | gtgggc     | 420 |
|    | agt                      | gctc       | etgt                       | tcct       | gago       | ca c       | aacc       | tgaa       | ag tt      | cctt       | gcaa       | aat        | tcct       | gaa        | tgad       | accatg     | 480 |
|    | gcc                      | gtct       | atg                        | aggo       | ctaaa      | act o      | ettec      | cacac      | cc aa      | actto      | ctace      | , aca      | actgt      | ggg        | caca       | atccag     | 540 |
|    | ctt                      | atca       | aacg                       | acca       | acgto      | caa g      | gaagg      | gaaac      | ct c       | gaggg      | gaaga      | ı ttg      | gtgga      | attt       | ggto       | agtgag     | 600 |
|    | cto                      | aaga       | aagg                       | acg        | tcttg      | gat g      | ggtgo      | tggt       | g a        | attad      | cattt      | act        | tcaa       | aagc       | cct        | gtgggag    | 660 |
|    | aaa                      | accat      | tca                        | ttt        | cctca      | aag g      | gacca      | actco      | cc a       | aaga       | cttct      | : at       | gttga      | atga       | gaad       | cacaaca    | 720 |
|    |                          |            |                            |            |            |            |            |            |            |            |            |            |            |            |            | cagatac    | 780 |
|    | _                        |            | -                          |            | -          |            |            |            |            |            |            |            |            |            |            |            |     |

840

ttgccctgct cggtgctacg gatggattac aaaggagacg caaccgtgtt tttcattctc

| cctaaccaag | gcaaaatgag | ggagattgaa | gaggttctga | ctccagagat | gctaatgagg | 900  |
|------------|------------|------------|------------|------------|------------|------|
| tggaacaact | tgttgcggaa | gaggaatttt | tacaagaagc | tagagttgca | tcttcccaag | 960  |
| ttctccattt | ctggctccta | tgtattagat | cagattttgc | ccaggctggg | cttcacggat | 1020 |
| ctgttctcca | agtgggctga | cttatccggc | atcaccaaac | agcaaaaact | ggaggcatcc | 1080 |
| aaaagtttcc | acaaggccac | cttggacgtg | gatgaggctg | gcaccgaggc | tgcagcagcc | 1140 |
| accacgttcg | cgatcaaatt | cttctctgcc | cagaccaatc | gccacatcct | gcgattcaac | 1200 |
| cggcccttcc | ttgtggtgat | cttttccacc | agcacccaga | gtgtcctctt | tctgggcaag | 1260 |
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Leu Lys Ile Ala Pro Ala Asn Ala Asp Phe Ala Phe Arg Phe Tyr Tyr 50 55 60

Leu Ile Ala Ser Glu Thr Pro Gly Lys Asn Ile Phe Phe Ser Pro Leu 70 75 80

Ser Ile Ser Ala Ala Tyr Ala Met Leu Ser Leu Gly Ala Cys Ser His 85 90 95

Ser Arg Ser Gln Ile Leu Glu Gly Leu Gly Phe Asn Leu Thr Glu Leu 100 105 110

Ser Glu Ser Asp Val His Arg Gly Phe Gln His Leu Leu His Thr Leu 115 120 125

Asn Leu Pro Gly His Gly Leu Glu Thr Arg Val Gly Ser Ala Leu Phe 130 135 140

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Ala Val Tyr Glu Ala Lys Leu Phe His Thr Asn Phe Tyr Asp Thr Val 165 170 175 Gly Thr Ile Gln Leu Ile Asn Asp His Val Lys Lys Glu Thr Arg Gly
180 185 190

Lys Ile Val Asp Leu Val Ser Glu Leu Lys Lys Asp Val Leu Met Val 195 200 205

Leu Val Asn Tyr Ile Tyr Phe Lys Ala Leu Trp Glu Lys Pro Phe Ile 210 215 220

Ser Ser Arg Thr Thr Pro Lys Asp Phe Tyr Val Asp Glu Asn Thr Thr 225 230 235 240

Val Arg Val Pro Met Met Leu Gln Asp Gln Glu His His Trp Tyr Leu 245 250 255

His Asp Arg Tyr Leu Pro Cys Ser Val Leu Arg Met Asp Tyr Lys Gly 260 265

Asp Ala Thr Val Phe Phe Ile Leu Pro Asn Gln Gly Lys Met Arg Glu 275 280 285

Ile Glu Glu Val Leu Thr Pro Glu Met Leu Met Arg Trp Asn Asn Leu 290 295 300

Leu Arg Lys Arg Asn Phe Tyr Lys Lys Leu Glu Leu His Leu Pro Lys 305 310 315

Phe Ser Ile Ser Gly Ser Tyr Val Leu Asp Gln Ile Leu Pro Arg Leu 325 330 335

Gly Phe Thr Asp Leu Phe Ser Lys Trp Ala Asp Leu Ser Gly Ile Thr 340 345 350

Lys Gln Gln Lys Leu Glu Ala Ser Lys Ser Phe His Lys Ala Thr Leu 355 360 365

Asp Val Asp Glu Ala Gly Thr Glu Ala Ala Ala Ala Thr Thr Phe Ala 370 380 .

Ile Lys Phe Phe Ser Ala Gln Thr Asn Arg His Ile Leu Arg Phe Asn 385 390 395 400

Arg Pro Phe Leu Val Val Ile Phe Ser Thr Ser Thr Gln Ser Val Leu 405 410 415

Phe Leu Gly Lys Val Val Asp Pro Thr Lys Pro 420 425

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<211> 1284

<212> DNA

<213> Homo sapiens

<220>

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<223> wherein N is either a "C" or a "T".

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| cagctgcacg | ttgagcatga | tggtgagagt | tgcagtaaca | gctcccacca | gcagattctg | 120  |
| gagacaggtg | agggctcccc | cagcctcaag | atagcccctg | ccaatgctga | ctttgccttc | 180  |
| cgcttctact | acctgatcgc | ttcggagacc | ccggggaaga | acatctttt  | ctccccgctg | 240  |
| agcatctcgg | cggcctacgc | catgctttcc | ctgggggcct | gctcacacag | ccgcagccag | 300  |
| atccttgagg | gcctgggctt | caacctcacc | gagctgtctg | agtccgatgt | ccataggggc | 360  |
| ttccagcacc | tcctgcacac | tctcaacctc | cccggccatg | ggctggaaac | acgcgtgggc | 420  |
| agtgctctgt | tcctgagcca | caacctgaag | ttccttgcaa | aattcctgaa | tgacaccatg | 480  |
| gccgtctatg | aggctaaact | cttccacacc | aacttctacg | acactgtggg | cacaatccag | 540  |
| cttatcaacg | accacgtcaa | gaaggaaact | cgagggaaga | ttgtggattt | ggtcagtgag | 600  |
| ctcaagaagg | acgtcttgat | ggtgctggtg | aattacattt | acttcaaagc | cctgtgggag | 660  |
| aaaccattca | tttcctcaag | gaccactccc | aaagactttt | atgttgatga | gaacacaaca | 720  |
| gtccgggtgc | ccatgatgct | gcaggaccag | gagcatcact | ggtatcttca | tgacagatac | 780  |
| ttgccctgct | cggtgctacg | gatggattac | aaaggagacg | caaccgtgtt | tttcattctc | 840  |
| cctaaccaag | gcaaaatgag | ggagattgaa | gaggttctga | ctccagagat | gctaatgagg | 900  |
| tggaacaact | tgttgcggaa | gaggaatttt | tacaagaagc | tagagttgca | tcttcccaag | 960  |
| ttctccattt | ctggctccta | tgtattagat | cagattttgc | ccaggctggg | cttcacggat | 1020 |
| ctgttctcca | agtgggctga | cttatccggc | atcaccaaac | agcaaaaact | ggaggcatcc | 1080 |
| aaaagtttcc | acaaggccac | cttggacgtg | gatgaggctg | gcaccgaggc | tgcagcagcc | 1140 |
| accacgttcg | cgatcaaatt | cttctctgcc | cagaccaatc | gccacatcct | gcgattcaac | 1200 |
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| gtcgtcgacc | ccacgaaacc | atag       |            |            |            | 1284 |

<sup>&</sup>lt;210> 574

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<sup>&</sup>lt;211> 427

<sup>&</sup>lt;212> PRT

<sup>&</sup>lt;213> Homo sapiens

<sup>&</sup>lt;400> 574

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| Leu        | Ser        | His        | Gly<br>20  | Gln        | Leu        | His        | Val        | Glu<br>25  | His        | Asp        | Gly        | Glu        | Ser<br>30  | Cys        | Ser        |
| Asn        | Ser        | Ser<br>35  | His        | Gln        | Gln        | Ile        | Leu<br>40  | Glu        | Thr        | Gly        | Glu        | Gly<br>45  | Ser        | Pro        | Ser        |
| Leu        | Lys<br>50  | Ile        | : Ala      | Pro        | Ala        | Asn<br>55  | Ala        | Asp        | Phe        | Ala        | Phe<br>60  | Arg        | Phe        | Tyr        | Туг        |
| Leu<br>65  | Ile        | Ala        | Ser        | Glu        | Thr<br>70  | Pro        | Gly        | Lys        | Asn        | 11e<br>75  | Phe        | Phe        | Ser        | Pro        | Leu<br>80  |
| Ser        | Ile        | Ser        | Ala        | Ala<br>85  | Tyr        | Ala        | Met        | Leu        | Ser<br>90  | Leu        | Gly        | Ala        | Суз        | Ser<br>95  | His        |
| Ser        | Arg        | Ser        | Gln<br>100 | Ile        | Leu        | Glu        | Gly        | Leu<br>105 | Gly        | Phe        | Asn        | Leu        | Thr<br>110 | Glu        | Leu        |
| Ser        | Glu        | Ser<br>115 | Asp        | Val        | His        | Arg        | Gly<br>120 | Phe        | Gln        | His        | Leu        | Leu<br>125 | His        | Thr        | Leu        |
| Asn        | Leu<br>130 | Pro        | Gly        | His        | Gly        | Leu<br>135 | Glu        | Thr        | Arg        | Val        | Gly<br>140 | Ser        | Ala        | Leu        | Phe        |
| Leu<br>145 | Ser        | His        | Asn        | Leu        | Lys<br>150 | Phe        | Leu        | Ala        | Lys        | Phe<br>155 | Leu        | Asn        | Asp        | Thr        | Met<br>160 |
| Ala        | Val        | Tyr        | Glu        | Ala<br>165 | Lys        | Leu        | Phe        | His        | Thr<br>170 | Asn        | Phe        | Tyr        | Asp        | Thr<br>175 | Val        |
| Gly        | Thr        | Ile        | Gln<br>180 | Leu        | Ile        | Asn        | Asp        | His<br>185 | Val        | Lys        | Lys        | Glu        | Thr<br>190 | Arg        | Gly        |
| Lys        | Ile        | Val<br>195 | Asp        | Leu        | Val        | Ser        | Glu<br>200 | Leu        | Lys        | Lys        | Asp        | Val<br>205 | Leu        | Met        | Val        |
| Leu        | Val<br>210 | Asn        | Tyr        | Ile        | Tyr        | Phe<br>215 | Lys        | Ala        | Leu        | Trp        | Glu<br>220 | Lys        | Pro        | Phe        | Ile        |
| Ser<br>225 | Ser        | Arg        | Thr        | Thr        | Pro<br>230 | Lys        | Asp        | Phe        | Tyr        | Val<br>235 | Asp        | Glu        | Asn        | Thr        | Thr<br>240 |
| Val        | Arg        | Val        | Pro        | Met<br>245 | Met        | Leu        | Gln        | Asp        | Gln<br>250 | Glu        | His        | His        | Trp        | Tyr<br>255 | Leu        |
| His        | Asp        | Arg        | Tyr<br>260 | Leu        | Pro        | Сув        | Ser        | Val<br>265 | Leu        | Arg        | Met        | Asp        | Tyr<br>270 | Lys        | Gly        |
| Asp        | Ala        | Thr<br>275 | Val        | Phe        | Phe        | Ile        | Leu<br>280 | Pro        | Asn        | Gln        | Gly        | Lys<br>285 | Met        | Arg        | Glu        |
| Ile        | Glu<br>290 | Glu        | Val        | Leu        | Thr        | Pro<br>295 | Glu        | Met        | Leu        | Met        | Arg<br>300 | Trp        | Asn        | Asn        | Leu        |
| Leu        | Arg        | Lys        | Arg        | Asn        | Phe        | Tyr        | Lys        | Lys        | Leu        | Glu        | Leu        | His        | Leu        | Pro        | Lys        |

| 305                          |            |                            |                       |            | 310        |            |            |            |            | 315        |            |            |            |            | 320        |     |
|------------------------------|------------|----------------------------|-----------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-----|
| Phe                          | Ser        | Ile                        | Ser                   | Gly<br>325 | Ser        | Tyr        | Val        | Leu        | Asp<br>330 | Gln        | Ile        | Leu        | Pro        | Arg<br>335 | Leu        |     |
| Gly                          | Phe        | Thr                        | Asp<br>340            | Leu        | Phe        | Ser        | Lys        | Trp<br>345 | Ala        | Asp        | Leu        | Ser        | Gly<br>350 | Ile        | Thr        |     |
| Lys                          | Gln        | Gln<br>355                 | Lys                   | Leu        | Glu        | Ala        | Ser<br>360 | Lys        | Ser        | Phe        | His        | Lys<br>365 | Ala        | Thr        | Leu        |     |
|                              | Val<br>370 | Asp                        | Glu                   | Ala        | Gly        | Thr<br>375 | Glu        | Ala        | Ala        | Ala        | Ala<br>380 | Thr        | Thr        | Phe        | Ala        |     |
| Ile<br>385                   | Lys        | Phe                        | Phe                   | Ser        | Ala<br>390 | Gln        | Thr        | Asn        | Arg        | His<br>395 | Ile        | Leu        | Arg        | Phe        | Asn<br>400 |     |
| Arg                          | Pro        | Phe                        | Leu                   | Val<br>405 | Val        | Ile        | Phe        | Ser        | Thr<br>410 | Ser        | Thr        | Gln        | Ser        | Val<br>415 | Leu        |     |
| Phe                          | Leu        | Gly                        | Lys<br>420            | Val        | Val        | Asp        | Pro        | Thr<br>425 | Lys        | Pro        |            |            |            |            |            |     |
| <210<br><211<br><212<br><213 | > 1<br>> I | 575<br>L284<br>DNA<br>Homo | sapi                  | iens       |            |            |            |            |            |            |            |            |            |            |            |     |
| <220<br><221<br><222<br><223 | > n        | (597)                      | _feat<br>)(!<br>ein 1 | 597)       | eith       | ner a      | ì "T"      | or         | a "(       | 2".        |            |            |            |            |            |     |
| <400<br>atgc                 |            | 575<br>Eta t               | togad                 | ctaco      | ct go      | ctcct      | cate       | ı cto      | gtto       | gac        | tact       | -ggc       | cct 1      | ttcto      | catggc     | 6(  |
| cagc                         | tgca       | acg t                      | tgaç                  | gcato      | ga to      | ggtga      | ıgagt      | tgc        | cagta      | aca        | gcto       | cccad      | cca g      | gcaga      | attctg     | 120 |
| gaga                         | cago       | gtg a                      | agggo                 | ctcc       | cc ca      | agcct      | caag       | , ata      | gccc       | cctg       | ccaa       | atgct      | ga, d      | ctttc      | gccttc     | 180 |
| cgct                         | tcta       | ect a                      | accto                 | gatco      | gc tt      | cgga       | agaco      | c ccc      | ggga       | aga        | acat       | cttt       | ett d      | ctcc       | cgctg      | 240 |
| agca                         | tata       | gg d                       | egged                 | ctaco      | jc ca      | tgct       | ttcc       | cto        | aggg       | gaat       | gcto       | cacac      | ag d       | ccgca      | agccag     | 300 |
| atcc                         | ttga       | igg g                      | gcctg                 | gggct      | t ca       | acct       | cacc       | gag        | gctgt      | ctg        | agto       | ccgat      | gt d       | ccata      | ggggc      | 360 |
| ttcc                         | agca       | ıcc t                      | ccts                  | gcaca      | ac to      | ctcaa      | accto      | ccc        | ggcc       | atg        | ggct       | ggaa       | ac a       | acgcg      | tgggc      | 420 |
| agtg                         | ctct       | gt t                       | ccts                  | gagco      | ca ca      | acct       | gaag       | , ttc      | ctto       | JCaa       | aatt       | ccts       | gaa t      | gaca       | ccatg      | 480 |
| gccg                         | tcta       | itg a                      | aggct                 | caaac      | ct ct      | tcca       | cacc       | aac        | ttct       | acg        | acac       | ctgtg      | iaa d      | cacaa      | tccag      | 540 |
| ctta                         | tcaa       | ıcg a                      | accac                 | egtea      | aa ga      | agga       | aact       | . cga      | ggga       | aga        | ttgt       | ggat       | tt g       | ggtca      | gcgag      | 600 |
| ctca                         | agaa       | igg a                      | acgto                 | cttga      | it gg      | tgct       | ggtg       | r aat      | taca       | ttt        | actt       | caaa       | igc o      | cctgt      | gggag      | 660 |

| aaaccattca | tttcctcaag | gaccactccc | aaagacttct | atgttgatga | gaacacaaca | 720  |
|------------|------------|------------|------------|------------|------------|------|
| gtccgggtgc | ccatgatgct | gcaggaccag | gagcatcact | ggtatcttca | tgacagatac | 780  |
| ttgccctgct | cggtgctacg | gatggattac | aaaggagacg | caaccgtgtt | tttcattctc | 840  |
| cctaaccaag | gcaaaatgag | ggagattgaa | gaggttctga | ctccagagat | gctaatgagg | 900  |
| tggaacaact | tgttgcggaa | gaggaatttt | tacaagaagc | tagagttgca | tcttcccaag | 960  |
| ttctccattt | ctggctccta | tgtattagat | cagattttgc | ccaggctggg | cttcacggat | 1020 |
| ctgttctcca | agtgggctga | cttatccggc | atcaccaaac | agcaaaaact | ggaggcatcc | 1080 |
| aaaagtttcc | acaaggccac | cttggacgtg | gatgaggctg | gcaccgaggc | tgcagcagcc | 1140 |
| accacgttcg | cgatcaaatt | cttctctgcc | cagaccaatc | gccacatcct | gcgattcaac | 1200 |
| cggcccttcc | ttgtggtgat | cttttccacc | agcacccaga | gtgtcctctt | tctgggcaag | 1260 |
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Leu Lys Ile Ala Pro Ala Asn Ala Asp Phe Ala Phe Arg Phe Tyr Tyr 50 55 60

Leu Ile Ala Ser Glu Thr Pro Gly Lys Asn Ile Phe Phe Ser Pro Leu 65 70 75 80

Ser Ile Ser Ala Ala Tyr Ala Met Leu Ser Leu Gly Ala Cys Ser His 85 90 95

Ser Arg Ser Gln Ile Leu Glu Gly Leu Gly Phe Asn Leu Thr Glu Leu 100 105 110

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                                                                      120
gagacaggtg agggctcccc cagcctcaag atagcccctg ccaatgctga ctttgccttc
                                                                      180
cgcttctact acctgatcgc ttcggagacc ccggggaaga acatcttttt ctccccgctg
                                                                      240
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| Annah Manga Maria Panga Sa Manga Sa Manda Manda Sa Manda |                |                        |            |            |   |    |
| ./1  |                | 671                    |            |            |   |    |
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| ļ=r <u>k</u>  |                | 678                    |            |              |     |    |
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|   | tttgctgaag agaatgctaa cataaagata tccttttgac c | 41 |
| i i   |   | 44 |
| יויים אינון היין אינון<br>ביין אינון היין אינון היין אינון היין אינון היין אינון היין אינון היין אינון אינון היין אינון היין אינון היין | <210> 696                                     |    |
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| be <i>j</i><br>set   | -225           | nome suprens     |     |          |
| ne P   | <400>          | 816              |     |          |
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| Truck Server Brook   |                | acaa ccatctgtcc  | С   | 21       |
| .Į   | _              | <b>9</b> · · · · |     | 41       |
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| Æ  | 3              | J. IJ III J. III |          | 21   |
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| Met  |                      |                          | Ser         |           | Pro        | Pro        | Leu        | Glu        | Leu       | Gln        | Ser        | Ser        | Asn        | Gln       | Ser        |    |
| 1  |                      |                          |             | 5         |            |            |            |            | 10        |            |            |            |            | 15        |            |    |
| Gln  | Leu                  | Phe                      | Pro<br>20   | Gln       | Asn        | Ala        | Thr        | Ala<br>25  | Cys       | Asp        | Asn        | Ala        | Pro<br>30  | Glu       | Ala        |    |
| Trp  | Asp                  | Leu<br>35                | Leu         | His       | Arg        | Val        | Leu<br>40  | Pro        | Thr       | Phe        | Ile        | Ile<br>45  | Ser        | Ile       | Cys        |    |
| Phe  | Phe<br>50            | Gly                      | Leu         | Leu       | Gly        | Asn<br>55  | Leu        | Phe        | Val       | Leu        | Leu<br>60  | Val        | Phe        | Leu       | Leu        |    |
| Pro<br>65                                    | Arg                  | Arg                      | Gln         | Leu       | Asn<br>70  | Val        | Ala        | Glu        | Ile       | Tyr<br>75  | Leu        | Ala        | Asn        | Leu       | Ala<br>80  |    |
| Ala  | Ser                  | Asp                      | Leu         | Val<br>85 | Phe        | Val        | Leu        | Gly        | Leu<br>90 | Pro        | Phe        | Trp        | Ala        | Glu<br>95 | Asn        |    |
| Ile  | Trp                  | Asn                      | Gln<br>100  | Phe       | Asn        | Trp        | Pro        | Phe<br>105 | Gly       | Ala        | Leu        | Leu        | Cys<br>110 | Arg       | Val        |    |
| Ile  | Asn                  | Gly<br>115               | Val         | Ile       | Lys        | Ala        | Asn<br>120 | Leu        | Phe       | Ile        | Ser        | Ile<br>125 | Phe        | Leu       | Val        |    |
| Val  | Ala<br>130           | Ile                      | Ser         | Gln       | Asp        | Arg<br>135 | Tyr        | Arg        | Val       | Leu        | Val<br>140 | His        | Pro        | Met       | Ala        |    |
| Ser<br>145                                   | Gly                  | Arg                      | Gln         | Gln       | Arg<br>150 | Arg        | Arg        | Gln        | Ala       | Arg<br>155 | Val        | Thr        | Cys        | Val       | Leu<br>160 |    |
| Ile  | Trp                  | Val                      | Val         | Gly       | Gly        | Leu        | Leu        | Ser        | Ile       | Pro        | Thr        | Phe        | Leu        | Leu       | Arg        |    |

|                              |              |                           |            | 165        |            |            |            |            | 170        |            |            |            |            | 175        |            |
|------------------------------|--------------|---------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Ser                          | Ile          | Gln                       | Ala<br>180 | Val        | Pro        | Asp        | Leu        | Asn<br>185 | Ile        | Thr        | Ala        | Cys        | Ile<br>190 | Leu        | Leu        |
| Leu                          | Pro          | His<br>195                | Glu        | Ala        | Trp        | His        | Phe<br>200 | Ala        | Arg        | Ile        | Val        | Glu<br>205 |            | Asn        | Ile        |
| Leu                          | Gly<br>210   | Phe                       | Leu        | Leu        | Pro        | Leu<br>215 | Ala        | Ala        | Ile        | Val        | Phe<br>220 | Phe        | Asn        | Tyr        | His        |
| Ile<br>225                   | Leu          | Ala                       | Ser        | Leu        | Arg<br>230 | Thr        | Arg        | Glu        | Glu        | Val<br>235 | Ser        | Arg        | Thr        | Arg        | Val<br>240 |
| Arg                          | Gly          | Pro                       | Lys        | Asp<br>245 | Ser        | Lys        | Thr        | Thr        | Ala<br>250 | Leu        | Ile        | Leu        | Thr        | Leu<br>255 | Val        |
| Val                          | Ala          | Phe                       | Leu<br>260 | Val        | Cys        | Trp        | Ala        | Pro<br>265 | Tyr        | His        | Phe        | Phe        | Ala<br>270 | Phe        | Leu        |
| Glu                          | Phe          | Leu<br>275                | Phe        | Gln        | Val        | Gln        | Ala<br>280 | Val        | Arg        | Gly        | Cys        | Phe<br>285 | Trp        | Glu        | Asp        |
| Phe                          | Ile<br>290   | Asp                       | Leu        | Gly        | Leu        | Gln<br>295 | Leu        | Ala        | Asn        | Phe        | Phe<br>300 | Ala        | Phe        | Thr        | Asn        |
| Ser<br>305                   | Ser          | Leu                       | Asn        | Pro        | Val<br>310 | Ile        | Tyr        | Val        | Phe        | Val<br>315 | Gly        | Arg        | Leu        | Phe        | Arg<br>320 |
| Thr                          | Lys          | Val                       | Trp        | Glu<br>325 | Leu        | Tyr        | Lys        | Gln        | Cys<br>330 | Thr        | Pro        | Lys        | Ser        | Leu<br>335 | Ala        |
| Pro                          | Ile          | Ser                       | Ser<br>340 | Ser        | His        | Arg        | Lys        | Glu<br>345 | Ile        | Phe        | Gln        | Leu        | Phe<br>350 | Trp        | Arg        |
| Asn                          |              |                           |            |            |            |            |            |            |            |            |            |            |            |            |            |
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| Leu                          | Ala          | Pro                       | Pro<br>20  | Asn        | Ala        | Thr        | Ser        | Cys<br>25  | Ser        | Gly        | Ala        | Pro        | Asp<br>30  | Ala        | Trp        |

Asp Leu Leu His Arg Leu Leu Pro Thr Phe Ile Ile Ala Ile Phe Thr

Leu Gly Leu Leu Gly Asn Ser Phe Val Leu Ser Val Phe Leu Leu Ala

40

55

60

Arg Arg Leu Ser Val Ala Glu Ile Tyr Leu Ala Asn Leu Ala Ala Ser Asp Leu Val Phe Val Leu Gly Leu Pro Phe Trp Ala Glu Asn Val Arg Asn Gln Phe Asp Trp Pro Phe Gly Ala Ala Leu Cys Arg Ile Val Asn Gly Val Ile Lys Ala Asn Leu Phe Ile Ser Ile Phe Leu Val Val Ala Ile Ser Gln Asp Arg Tyr Ser Val Leu Val His Pro Met Ala Ser 135 Arg Arg Gly Arg Arg Arg Gln Ala Gln Ala Thr Cys Ala Leu Ile 150 155 Trp Leu Ala Gly Gly Leu Leu Ser Thr Pro Thr Phe Val Leu Arg Ser 165 170 Val Arg Ala Val Pro Glu Leu Asn Val Ser Ala Cys Ile Leu Leu Leu 185 Pro His Glu Ala Trp His Trp Leu Arg Met Val Glu Leu Asn Leu Leu 200 Gly Phe Leu Pro Leu Ala Ala Ile Leu Phe Phe Asn Cys His Ile 215 220 Leu Ala Ser Leu Arg Arg Gly Glu Arg Val Pro Ser Arg Cys Gly 230 235 Gly Pro Arg Asp Ser Lys Ser Thr Ala Leu Ile Leu Thr Leu Val Ala 245 250 Ser Phe Leu Val Cys Trp Ala Pro Tyr His Phe Phe Ala Phe Leu Glu 260 Cys Leu Trp Gln Val His Ala Ile Gly Gly Cys Phe Trp Glu Glu Phe 280 Thr Asp Leu Gly Leu Gln Leu Ser Asn Phe Ser Ala Phe Val Asn Ser Cys Leu Asn Pro Val Ile Tyr Val Phe Val Gly Arg Leu Phe Arg Thr Lys Val Trp Glu Leu Cys Gln Gln Cys Ser Pro Arg Ser Leu Ala Pro Val Ser Ser Ser Arg Arg Lys Glu Met Leu Trp Gly Phe Trp Arg Asn 345 <210> 837 <211> 337 <212> PRT

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20 25 30

Asp Leu Leu Tyr Arg Val Leu Pro Gly Phe Val Ile Thr Ile Cys Phe 35 40 45

Phe Gly Leu Leu Gly Asn Leu Leu Val Leu Ser Phe Phe Leu Leu Pro 50 55 60

Trp Arg Gln Trp Trp Gln Gln Arg Gln Arg Gln Gln Arg Leu Thr 65 70 75 80

Ile Ala Glu Ile Tyr Leu Ala Asn Leu Ala Ala Ser Asp Leu Val Phe 85 90 95

Val Leu Gly Leu Pro Phe Trp Ala Glu Asn Ile Gly Asn Arg Phe Asn 100 105 110

Trp Pro Phe Gly Thr Asp Leu Cys Arg Val Val Ser Gly Val Ile Lys 115 120 125

Ala Asn Leu Phe Val Ser Ile Phe Leu Val Val Ala Ile Ser Gln Asp 130 135 140

Arg Tyr Arg Leu Leu Val Tyr Pro Met Thr Ser Trp Gly Tyr Arg Arg 145 150 155 160

Arg Arg Gln Ala Gln Ala Thr Cys Leu Leu Ile Trp Val Ala Gly Gly 165 170 175

Leu Leu Ser Ile Pro Thr Phe Leu Leu Arg Ser Val Lys Val Val Pro 180 185 190

Asp Leu Asn Val Ser Ala Cys Ile Leu Leu Phe Pro His Glu Ala Trp 195 200 205

His Phe Ala Arg Met Val Glu Leu Asn Val Leu Gly Phe Leu Leu Pro 210 215 220

Val Thr Ala Ile Ile Phe Phe Asn Tyr His Ile Leu Ala Ser Leu Arg 225 230 235 240

Gly Gln Lys Glu Ala Ser Arg Thr Arg Cys Gly Gly Pro Lys Gly Ser 245 250 255

Lys Thr Thr Gly Leu Ile Leu Thr Leu Val Ala Ser Phe Leu Val Cys 260 265 270

Trp Cys Pro Tyr His Phe Phe Ala Phe Leu Asp Phe Leu Val Gln Val 275 280 285 Arg Val Ile Gln Asp Cys Ser Trp Lys Glu Ile Thr Asp Leu Gly Leu 290 295 300

Gln Leu Ala Asn Phe Phe Ala Phe Val Asn Ser Cys Leu Asn Pro Leu 305 310 315 320

Ile Tyr Val Phe Ala Gly Arg Leu Leu Lys Thr Arg Val Leu Gly Thr 325 330 335

Leu

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Gln Val Leu Gly Ser Ala Leu Asn Gly Thr Leu Ser Lys Asp Asn Cys 35 40 45

Pro Asp Thr Glu Trp Trp Ser Trp Leu Asn Ala Ile Gln Ala Pro Phe 50 55 60

Leu Trp Val Leu Phe Leu Leu Ala Ala Leu Glu Asn Leu Phe Val Leu 65 70 75 80

Ser Val Phe Phe Leu His Lys Asn Ser Cys Thr Val Ala Glu Ile Tyr 85 90 95

Leu Gly Asn Leu Ala Ala Ala Asp Leu Ile Leu Ala Cys Gly Leu Pro 100 105 110

Phe Trp Ala Ile Thr Ile Ala Asn Asn Phe Asp Trp Val Phe Gly Glu 115 120 125

Val Leu Cys Arg Val Val Asn Thr Met Ile Tyr Met Asn Leu Tyr Ser 130 135 140

Ser Ile Cys Phe Leu Met Leu Val Ser Ile Asp Arg Tyr Leu Ala Leu 145 150 155 160

Val Lys Thr Met Ser Met Gly Arg Met Arg Gly Val Arg Trp Ala Lys 165 170 175

Leu Tyr Ser Leu Val Ile Trp Gly Cys Thr Leu Leu Leu Ser Ser Pro 180 185 190

Met Leu Val Phe Arg Thr Met Arg Glu Tyr Ser Glu Glu Gly His Asn

195 200 205 Val Thr Ala Cys Val Ile Val Tyr Pro Ser Arg Ser Trp Glu Val Phe 215 220 Thr Asn Val Leu Leu Asn Leu Val Gly Phe Leu Leu Pro Leu Ser Val 230 235 Ile Thr Phe Cys Thr Val Arg Ile Leu Gln Val Leu Arg Asn Asn Glu 250 Met Lys Lys Phe Lys Glu Val Gln Thr Glu Arg Lys Ala Thr Val Leu 265 Val Leu Ala Val Leu Gly Leu Phe Val Leu Cys Trp Val Pro Phe Gln 280 Ile Ser Thr Phe Leu Asp Thr Leu Leu Arg Leu Gly Val Leu Ser Gly 295 Cys Trp Asp Glu His Ala Val Asp Val Ile Thr Gln Ile Ser Ser Tyr 310 Val Ala Tyr Ser Asn Ser Gly Leu Asn Pro Leu Val Tyr Val Ile Val 325 330 Gly Lys Arg Phe Arg Lys Lys Ser Arg Glu Val Tyr Arg Val Leu Cys Gln Lys Gly Gly Cys Met Gly Glu Pro Val Gln Met Glu Asn Ser Met 360 Gly Thr Leu Arg Thr Ser Ile Ser Val Glu Arg Gln Ile His Lys Leu 375 Gln Asp Trp Ala Gly Lys Lys Gln 390 <210> 839 <211> 367 <212> PRT <213> Oryctolagus cuniculus <400> 839 Met Leu Asn Ile Thr Ser Gln Val Leu Ala Pro Ala Leu Asn Gly Ser

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Asn Val Ile Gln Ala Pro Phe Leu Trp Val Leu Phe Val Leu Ala Thr 40

Leu Glu Asn Leu Phe Val Leu Ser Val Phe Cys Leu His Lys Ser Ser 55

Cys Thr Val Ala Glu Val Tyr Leu Gly Asn Leu Ala Ala Ala Asp Leu Ile Leu Ala Cys Gly Leu Pro Phe Trp Ala Val Thr Ile Ala Asn His 90 Phe Asp Trp Leu Phe Gly Glu Ala Leu Cys Arg Val Val Asn Thr Met 105 Ile Tyr Met Asn Leu Tyr Ser Ser Ile Cys Phe Leu Met Leu Val Ser 120 Ile Asp Arg Tyr Leu Ala Leu Val Lys Thr Met Ser Ile Gly Arg Met 135 Arg Arg Val Arg Trp Ala Lys Leu Tyr Ser Leu Val Ile Trp Gly Cys 150 155 Thr Leu Leu Ser Ser Pro Met Leu Val Phe Arg Thr Met Lys Asp 170 Tyr Arg Asp Glu Gly Tyr Asn Val Thr Ala Cys Ile Ile Asp Tyr Pro 185 Ser Arg Ser Trp Glu Val Phe Thr Asn Val Leu Leu Asn Leu Val Gly 200 Phe Leu Leu Pro Leu Ser Val Ile Thr Phe Cys Thr Val Gln Ile Leu 215 220 Gln Val Leu Arg Asn Asn Glu Met Gln Lys Phe Lys Glu Ile Gln Thr 235 Glu Arg Arg Ala Thr Val Leu Val Leu Ala Val Leu Leu Leu Phe Val 250 Val Cys Trp Leu Pro Phe Gln Val Ser Thr Phe Leu Asp Thr Leu Leu Lys Leu Gly Val Leu Ser Ser Cys Trp Asp Glu His Val Ile Asp Val Ile Thr Gln Val Gly Ser Phe Met Gly Tyr Ser Asn Ser Cys Leu Asn Pro Leu Val Tyr Val Ile Val Gly Lys Arg Phe Arg Lys Lys Ser Arg 315 Glu Val Tyr Arg Ala Ala Cys Pro Lys Ala Gly Cys Val Leu Glu Pro Val Gln Ala Glu Ser Ser Met Gly Thr Leu Arg Thr Ser Ile Ser Val 345 Glu Arg Gln Ile His Lys Leu Pro Glu Trp Thr Arg Ser Ser Gln 360

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Ile Gln Ala Pro Phe Leu Trp Val Leu Phe Val Leu Ala Val Leu Glu 35 40 45

Asn Ile Phe Val Leu Ser Val Phe Phe Leu His Lys Ser Ser Cys Thr 50 55 60

Val Ala Glu Ile Tyr Leu Gly Asn Leu Ala Val Ala Asp Leu Ile Leu 65 70 75 80

Ala Phe Gly Leu Pro Phe Trp Ala Ile Thr Ile Ala Asn Asn Phe Asp 85 90 95

Trp Leu Phe Gly Glu Val Leu Cys Arg Met Val Asn Thr Met Ile Gln 100 105 110

Met Asn Met Tyr Ser Ser Ile Cys Phe Leu Met Leu Val Ser Ile Asp 115 120 125

Arg Tyr Leu Ala Leu Val Lys Thr Met Ser Met Gly Arg Met Arg Gly 130 135 140

Val Arg Trp Ala Lys Leu Tyr Ser Leu Val Ile Trp Gly Cys Ala Leu 145 150 155 160

Leu Leu Ser Ser Pro Met Leu Val Phe Arg Thr Met Lys Asp Tyr Arg 165 170 175

Asp Glu Gly His Asn Val Thr Ala Cys Leu Ile Ile Tyr Pro Ser Leu 180 185 190

Thr Trp Gln Val Phe Thr Asn Val Leu Leu Asn Leu Val Gly Phe Leu 195 200 205

Leu Pro Leu Ser Ile Ile Thr Phe Cys Thr Val Gln Ile Met Gln Val 210 215 220

Leu Arg Asn Asn Glu Met Gln Lys Phe Lys Glu Ile Gln Thr Glu Arg 225 230 235 240

Arg Ala Thr Val Leu Val Leu Ala Val Leu Leu Leu Phe Val Val Cys 245 250 255

Trp Leu Pro Phe Gln Ile Gly Thr Phe Leu Asp Thr Leu Arg Leu Leu 260 265 270

Gly Phe Leu Pro Gly Cys Trp Glu His Val Ile Asp Leu Ile Thr Gln 275 280 285

Ile Ser Ser Tyr Leu Ala Tyr Ser Asn Ser Cys Leu Asn Pro Leu Val 290 295 300

Tyr Val Ile Val Gly Lys Arg Phe Arg Lys Lys Ser Arg Glu Val Tyr 305 310 315 320

His Gly Leu Cys Arg Ser Gly Gly Cys Val Ser Glu Pro Ala Gln Ser 325 330 335

Glu Asn Ser Met Gly Thr Leu Arg Thr Ser Ile Ser Val Asp Arg Gln 340 345 350

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Pro Gly Leu Leu 370

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<211> 396

<212> PRT

<213> Rattus norvegicus

<400> 841

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Asn Ile Thr Thr Gln Ala Leu Gly Ser Ala His Asn Gly Thr Phe Ser 35 40 45

Glu Val Asn Cys Pro Asp Thr Glu Trp Trp Ser Trp Leu Asn Ala Ile 50 55 60

Gln Ala Pro Phe Leu Trp Val Leu Phe Leu Leu Ala Ala Leu Glu Asn 65 70 75 80

Ile Phe Val Leu Ser Val Phe Cys Leu His Lys Thr Asn Cys Thr Val 85 90 95

Ala Glu Ile Tyr Leu Gly Asn Leu Ala Ala Ala Asp Leu Ile Leu Ala 100 105 110

Cys Gly Leu Pro Phe Trp Ala Ile Thr Ile Ala Asn Asn Phe Asp Trp 115 120 125

Leu Phe Gly Glu Val Leu Cys Arg Val Val Asn Thr Met Ile Tyr Met 130 135 140

Asn Leu Tyr Ser Ser Ile Cys Phe Leu Met Leu Val Ser Ile Asp Arg

| 145                              | 5                      |                         |                    |            | 150        | )          |            |            |            | 155         | 5          |            |            |            | 160        |
|----------------------------------|------------------------|-------------------------|--------------------|------------|------------|------------|------------|------------|------------|-------------|------------|------------|------------|------------|------------|
| Tyr                              | Le                     | ı Ala                   | a Lei              | ı Val      | L Lys      | Thi        | Met        | Ser        | Met<br>170 | Gl <u>y</u> | y Arg      | y Met      | : Arg      | Gly        | Val        |
| Arg                              | Tr                     | o Alá                   | 180                | Leu<br>)   | туг        | Ser        | Leu        | Val<br>185 |            | e Trp       | Ser        | Cys        | Thr<br>190 |            | Leu        |
| Leu                              | Ser                    | Ser<br>195              | Pro                | Met        | : Leu      | Val        | Phe 200    | Arg        | Thr        | Met         | : Lys      | Asp<br>205 |            | Arg        | Glu        |
| Glu                              | Gl <sub>y</sub><br>210 | / His                   | s Asn              | val        | Thr        | Ala<br>215 | Cys        | Val        | Ile        | · Val       | Tyr<br>220 |            | Ser        | Arg        | Ser        |
| Trp<br>225                       | Glu                    | val                     | . Phe              | Thr        | Asn<br>230 | Met        | Leu        | Leu        | Asn        | Leu<br>235  |            | Gly        | Phe        | Leu        | Leu<br>240 |
| Pro                              | Leu                    | Ser                     | lle                | Ile<br>245 | Thr        | Phe        | Cys        | Thr        | Val<br>250 | Arg         | Ile        | Met        | Gln        | Val<br>255 | Leu        |
| Arg                              | Asn                    | Asn                     | Glu<br>260         | Met        | Lys        | Lys        | Phe        | Lys<br>265 | Glu        | Val         | Gln        | Thr        | Glu<br>270 | Lys        | Lys        |
| Ala                              | Thr                    | Val<br>275              | Leu                | Val        | Leu        | Ala        | Val<br>280 | Leu        | Gly        | Leu         | Phe        | Val<br>285 | Leu        | Cys        | Trp        |
| Phe                              | Pro<br>290             | Phe                     | Gln                | Ile        | Ser        | Thr<br>295 | Phe        | Leu        | Asp        | Thr         | Leu<br>300 | Leu        | Arg        | Leu        | Gly        |
| Val<br>305                       | Leu                    | Ser                     | Gly                | Cys        | Trp<br>310 | Asn        | Glu        | Arg        | Ala        | Val<br>315  | Asp        | Ile        | Val        | Thr        | Gln<br>320 |
| Ile                              | Ser                    | Ser                     | Tyr                | Val<br>325 | Ala        | Tyr        | Ser        | Asn        | Ser<br>330 | Cys         | Leu        | Asn        | Pro        | Leu<br>335 | Val        |
| Tyr                              | Val                    | Ile                     | Val<br>340         | Gly        | Lys        | Arg        | Phe        | Arg<br>345 | Lys        | Lys         | Ser        | Arg        | Glu<br>350 | Val        | Tyr        |
| Gln                              | Ala                    | Ile<br>355              | Cys                | Arg        | Lys        | Gly        | Gly<br>360 | Cys        | Met        | Gly         | Glu        | Ser<br>365 | Val        | Gln        | Met        |
| Glu                              | Asn<br>370             | Ser                     | Met                | Gly        | Thr        | Leu<br>375 | Arg        | Thr        | Ser        | Ile         | Ser<br>380 | Val        | Asp        | Arg        | Gln        |
| Ile<br>385                       | His                    | Lys                     | Leu                | Gln        | Asp<br>390 | Trp        | Ala        | Gly        |            | Lys<br>395  | Gln        |            |            |            |            |
| <210:<br><211:<br><212:<br><213: | > 3<br>> E             | 442<br>405<br>NA<br>omo | sapi               | ens        |            |            |            |            |            |             |            |            |            |            |            |
| <220:<br><221:<br><222:<br><223: | > m<br>> (             | 2173                    | feat<br>)(<br>in N | 2173       |            | er a       | "T"        | or a       | a "C       | " <b>.</b>  |            |            |            |            |            |

| <400> 842  |            |            |            |            |            |      |
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| gctccttctc | agccttgttg | ctgtaactgc | tgctcagtcc | accattgagg | aacaggccaa | 180  |
| gacatttttg | gacaagttta | accacgaagc | cgaagacctg | ttctatcaaa | gttcacttgc | 240  |
| ttcttggaat | tataacacca | atattactga | agagaatgtc | caaaacatga | ataatgctgg | 300  |
| ggacaaatgg | tctgcctttt | taaaggaaca | gtccacactt | gcccaaatgt | atccactaca | 360  |
| agaaattcag | aatctcacag | tcaagcttca | gctgcaggct | cttcagcaaa | atgggtcttc | 420  |
| agtgctctca | gaagacaaga | gcaaacggtt | gaacacaatt | ctaaatacaa | tgagcaccat | 480  |
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| aggtttgaat | gaaataatgg | caaacagttt | agactacaat | gagaggctct | gggcttggga | 600  |
| aagctggaga | tctgaggtcg | gcaagcagct | gaggccatta | tatgaagagt | atgtggtctt | 660  |
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| ctatgaagta | aatggggtag | atggctatga | ctacagccgc | ggccagttga | ttgaagatgt | 780  |
| ggaacatacc | tttgaagaga | ttaaaccatt | atatgaacat | cttcatgcct | atgtgagggc | 840  |
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| aatattcaag | gaggccgaga | agttctttgt | atctgttggt | cttcctaata | tgactcaagg | 1080 |
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| cacagcttgg | gacctgggga | agggcgactt | caggatcctt | atgtgcacaa | aggtgacaat | 1200 |
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| aatcatgtca | ctttctgcag | ccacacctaa | gcatttaaaa | tccattggtc | ttctgtcacc | 1380 |
| cgattttcaa | gaagacaatg | aaacagaaat | aaacttcctg | ctcaaacaag | cactcacgat | 1440 |
| tgttgggact | ctgccattta | cttacatgtt | agagaagtgg | aggtggatgg | tctttaaagg | 1500 |
| ggaaattccc | aaagaccagt | ggatgaaaaa | gtggtgggag | atgaagcgag | agatagttgg | 1560 |
| ggtggtggaa | cctgtgcccc | atgatgaaac | atactgtgac | cccgcatctc | tgttccatgt | 1620 |
| ttctaatgat | tactcattca | ttcgatatta | cacaaggacc | ctttaccaat | tccagtttca | 1680 |

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<400> 843

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Asn His Glu Ala Glu Asp Leu Phe Tyr Gln Ser Ser Leu Ala Ser Trp 35 40 45

Asn Tyr Asn Thr Asn Ile Thr Glu Glu Asn Val Gln Asn Met Asn Asn 50 55 60

Ala Gly Asp Lys Trp Ser Ala Phe Leu Lys Glu Gln Ser Thr Leu Ala 65 70 75 80

Gln Met Tyr Pro Leu Gln Glu Ile Gln Asn Leu Thr Val Lys Leu Gln 85 90 95

Leu Gln Ala Leu Gln Gln Asn Gly Ser Ser Val Leu Ser Glu Asp Lys
100 105 110

Ser Lys Arg Leu Asn Thr Ile Leu Asn Thr Met Ser Thr Ile Tyr Ser 115 120 125

Thr Gly Lys Val Cys Asn Pro Asp Asn Pro Gln Glu Cys Leu Leu 130 135 140

Glu Pro Gly Leu Asn Glu Ile Met Ala Asn Ser Leu Asp Tyr Asn Glu 145 150 155 160

Arg Leu Trp Ala Trp Glu Ser Trp Arg Ser Glu Val Gly Lys Gln Leu 165 170 175

Arg Pro Leu Tyr Glu Glu Tyr Val Val Leu Lys Asn Glu Met Ala Arg 180 185 190

Ala Asn His Tyr Glu Asp Tyr Gly Asp Tyr Trp Arg Gly Asp Tyr Glu
195 200 205

Val Asn Gly Val Asp Gly Tyr Asp Tyr Ser Arg Gly Gln Leu Ile Glu 210 215 220

Asp Val Glu His Thr Phe Glu Glu Ile Lys Pro Leu Tyr Glu His Leu 225 230 235 240

His Ala Tyr Val Arg Ala Lys Leu Met Asn Ala Tyr Pro Ser Tyr Ile 245 250 255

Ser Pro Ile Gly Cys Leu Pro Ala His Leu Leu Gly Asp Met Trp Gly 260 265 270

Arg Phe Trp Thr Asn Leu Tyr Ser Leu Thr Val Pro Phe Gly Gln Lys 275 280 285

Pro Asn Ile Asp Val Thr Asp Ala Met Val Asp Gln Ala Trp Asp Ala 290 295 300

Gln Arg Ile Phe Lys Glu Ala Glu Lys Phe Phe Val Ser Val Gly Leu 305 310 315 320

Pro Asn Met Thr Gln Gly Phe Trp Glu Asn Ser Met Leu Thr Asp Pro 325 330 335

Gly Asn Val Gln Lys Ala Val Cys His Pro Thr Ala Trp Asp Leu Gly 340 345 350

Lys Gly Asp Phe Arg Ile Leu Met Cys Thr Lys Val Thr Met Asp Asp 355 360 365

Phe Leu Thr Ala His His Glu Met Gly His Ile Gln Tyr Asp Met Ala 370 380

Tyr Ala Ala Gln Pro Phe Leu Leu Arg Asn Gly Ala Asn Glu Gly Phe 385 390 395 400

His Glu Ala Val Gly Glu Ile Met Ser Leu Ser Ala Ala Thr Pro Lys 405 410 415

His Leu Lys Ser Ile Gly Leu Leu Ser Pro Asp Phe Gln Glu Asp Asn 420 425 430

Glu Thr Glu Ile Asn Phe Leu Leu Lys Gln Ala Leu Thr Ile Val Gly 435 440 445

Thr Leu Pro Phe Thr Tyr Met Leu Glu Lys Trp Arg Trp Met Val Phe 450 455 460

Lys Gly Glu Ile Pro Lys Asp Gln Trp Met Lys Lys Trp Trp Glu Met 465 470 475 480

Lys Arg Glu Ile Val Gly Val Val Glu Pro Val Pro His Asp Glu Thr . 485 490 495

Tyr Cys Asp Pro Ala Ser Leu Phe His Val Ser Asn Asp Tyr Ser Phe 500 505 510

Ile Arg Tyr Tyr Thr Arg Thr Leu Tyr Gln Phe Gln Phe Gln Glu Ala 515 520 525

Leu Cys Gln Ala Ala Lys His Glu Gly Pro Leu His Lys Cys Asp Ile 530 540

Ser Asn Ser Thr Glu Ala Gly Gln Lys Leu Phe Asn Met Leu Arg Leu 545 550 555 560

Gly Lys Ser Glu Pro Trp Thr Leu Ala Leu Glu Asn Val Val Gly Ala Lys Asn Met Asn Val Arg Pro Leu Leu Asn Tyr Phe Glu Pro Leu Phe 585 Thr Trp Leu Lys Asp Gln Asn Lys Asn Ser Phe Val Gly Trp Ser Thr 600 Asp Trp Ser Pro Tyr Ala Asp Gln Ser Ile Lys Val Arg Ile Ser Leu 615 Lys Ser Ala Leu Gly Asp Lys Ala Tyr Glu Trp Asn Asp Asn Glu Met 630 Tyr Leu Phe Arg Ser Ser Val Ala Tyr Ala Met Arg Gln Tyr Phe Leu 645 Lys Val Lys Asn Gln Met Ile Leu Phe Gly Glu Glu Asp Val Arg Val Ala Asn Leu Lys Pro Arg Ile Ser Phe Asn Phe Phe Val Thr Ala Pro 680 Lys Asn Val Ser Asp Ile Ile Pro Arg Thr Glu Val Glu Lys Ala Ile 695 Arg Met Ser Arg Ser Arg Ile Asn Asp Ala Phe Arg Leu Asn Asp Asn Ser Leu Glu Phe Leu Gly Ile Gln Pro Thr Leu Gly Pro Pro Asn Gln 730 Pro Pro Val Ser Ile Trp Leu Ile Val Phe Gly Val Val Met Gly Val Ile Val Val Gly Ile Val Ile Leu Ile Phe Thr Gly Ile Arg Asp Arg 760 Lys Lys Lys Asn Lys Ala Arg Ser Gly Glu Asn Pro Tyr Ala Ser Ile Asp Ile Ser Lys Gly Glu Asn Asn Pro Gly Phe Gln Asn Thr Asp Asp 795 Val Gln Thr Ser Phe

Val Gln Thr Ser Phe 805

- <210> 844
- <211> 3733
- <212> DNA
- <213> homo sapiens
- <220>
- <221> misc\_feature
- <222> (40)..(40)

jar.

<223> wherein N is either a "C" or a "T". <220> <221> misc\_feature <222> (47)..(47) <223> wherein N is either an "A" or a "C". <220> <221> misc\_feature <222> (933)..(933) <223> wherein N is either a "T" or a "C". <220> <221> misc\_feature <222> (1061)..(1061) <223> wherein N is either a "G" or an "A". <400> 844 atgttctctc cctggaagat atcaatgttt ctgtctgttn gtgaggnctc cgtgcccacc 60 acggcctctt tcagcgccga catgctcaat gtcaccttgc aagggcccac tcttaacggg 120 acctttgccc agagcaaatg cccccaagtg gagtggctgg gctggctcaa caccatccag 180 cccccttcc tctgggtgct gttcgtgctg gccaccctag agaacatctt tgtcctcagc 240 gtcttctgcc tgcacaagag cagctgcacg gtggcagaga tctacctggg gaacctggcc 300 gcagcagacc tgatcctggc ctgcgggctg cccttctggg ccatcaccat ctccaacaac 360 ttcgactggc tctttgggga gacgctctgc cgcgtggtga atgccattat ctccatgaac 420 ctgtacagca gcatctgttt cctgatgctg gtgagcatcg accgctacct ggccctggtg 480 aaaaccatgt ccatgggccg gatgcgcggc gtgcgctggg ccaagctcta cagcttggtg 540 atctgggggt gtacgctgct cctgagctca cccatgctgg tgttccggac catgaaggag 600 tacagegatg agggecacaa egteaceget tgtgteatea getacecate eeteatetgg 660 gaagtgttca ccaacatgct cctgaatgtc gtgggcttcc tgctgcccct gagtgtcatc 720 accttctgca cgatgcagat catgcaggtg ctgcggaaca acgagatgca gaagttcaag 780 gagatccaga cggagaggag ggccacggtg ctagtcctgg ttgtgctgct gctattcatc 840 atctgctggc tgcccttcca gatcagcacc ttcctggata cgctgcatcg cctcggcatc 900 ctctccagct gccaggacga gcgcatcatc gangtaatca cacagatcgc ctccttcatg 960 geetacagea acagetgeet caacecaetg gtgtacgtga tegtgggeaa gegetteega 1020 aagaagtett gggaggtgta eeagggagtg tgeeagaaag ngggetgeag gteagaaeee

1080

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<222>

VARIANT

(354)..(354)

<223> wherein Xaa is either "Gly" or a "Glu".

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aaaaaaaaa aaa
                                                                    3733
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       845
<211>
       391
<212>
      PRT
<213> homo sapiens
<220>
<221>
      VARIANT
<222>
      (14)..(14)
<223> wherein Xaa is either "Arg" or a "Cys".
<220>
<221>
      VARIANT
<222>
       (16)..(16)
      wherein Xaa is either "Asp" or a "Ala".
<223>
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<400> 845

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Ser Thr Phe Leu Asp Thr Leu His Arg Leu Gly Ile Leu Ser Ser Cys Gln Asp Glu Arg Ile Ile Asp Val Ile Thr Gln Ile Ala Ser Phe Met 310 315 Ala Tyr Ser Asn Ser Cys Leu Asn Pro Leu Val Tyr Val Ile Val Gly 325 330 Lys Arg Phe Arg Lys Lys Ser Trp Glu Val Tyr Gln Gly Val Cys Gln 345 Lys Xaa Gly Cys Arg Ser Glu Pro Ile Gln Met Glu Asn Ser Met Gly 355 360 Thr Leu Arg Thr Ser Ile Ser Val Glu Arg Gln Ile His Lys Leu Gln 375 Asp Trp Ala Gly Ser Arg Gln 385 <210> 846 <211> 3428 <212> DNA <213> homo sapiens <400> 846 caccctatcc tacactacta ggaacttgca cagtccgcct cgggcagccc aaagctcctc 60 tgcccaccct ggctcccaaa accctccaaa acaaaagacc agaaaagcac tctccaccca 120 gcagccaaac gcctccttct tgacgccagc ccccaccctc tgtctgctcg agcccaggaa 180 aggcctgaag gaacaggccg gggaaggagc cctccctctc tcccttgtcc ctccatccac 240 ccagcgccgg catctggaga ccctatggcc cgggctcact ggggctgctg cccctggctg 300 gtcctcctct gtgcttgtgc ctggggccac acaaagccac tggaccttgg agggcaggat 360 gtgagaaatt gttccaccaa cccccttac cttccagtta ctgtggtcaa taccacaatg 420 tcactcacag ccctccgcca gcagatgcag acccagaatc tctcagccta catcatccca 480 ggcacagatg ctcacatgaa cgagtacatc ggccaacatg acgagaggcg tgcgtggatt 540 acaggettta cagggtetge aggaactgea gtggtgaeta tgaagaaage agetgtetgg 600 accgacagtc gctactggac tcaggctgag cggcaaatgg actgtaattg ggagctccat 660 aaggaagttg gcaccactcc tattgtcacc tggctcctca ccgagattcc tgctggaggg 720 cgtgtgggtt ttgacccctt cctcttgtcc attgacacct gggagagtta tgatctggcc 780 ctccaaggct ctaacagaca gctggtgtcc atcacaacca atcttgtgga cctggtatgg 840

900

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| gggagcactt   | ggcaggagaa  | a agtatctggd | gtccgaagco   | agatgcaga:   | a gcatcaaaag | 960  |
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| tccattgaac   | ctggttacta  | taaggatgga   | gaatttggga   | tccgtctcga   | agatgtggct   | 1980 |
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| ggcccctaat c | ccaggcccc i | gaaataggaa a | agccagctag ( | ctcttctct    | tctgtgatct   | 2580 |
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| aagccccaag | aaaacaatgc | ccctaccacc | caagggtgcc | atggtcccgg | gaaaacccaa | 2700 |
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| cccagccagg | gatgaaaaat | caacccccga | catggaaccc | atgattccta | aacccggggt | 2880 |
| aggttccatg | ccaagtaaca | gcagagggag | ttaagccata | ggaatttggc | tgtggagtaa | 2940 |
| gagggaatgc | ggtgaggcag | tgtggaatat | gaccctacca | gaggttggag | aacaaacttg | 3000 |
| ggcagccgga | acccgtcact | attttagatt | cctggcattc | gaggagccct | ttgaactttc | 3060 |
| caaagtgcag | ccacagctac | aatgctgtta | aatcctccca | catttcttgg | atgccccttc | 3120 |
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| cgttagccac | ctgggtccac | atcctgctaa | gacgtttaaa | acagcctaac | aaagacactt | 3420 |
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<210> 847 <211> 673

<212> PRT

<213> homo sapiens

<400> 847

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Ala Cys Ala Trp Gly His Thr Lys Pro Leu Asp Leu Gly Gly Gln Asp 20 25 30

Val Arg Asn Cys Ser Thr Asn Pro Pro Tyr Leu Pro Val Thr Val Val 35 40 45

Asn Thr Thr Met Ser Leu Thr Ala Leu Arg Gln Gln Met Gln Thr Gln 50 55 60

Asn Leu Ser Ala Tyr Ile Ile Pro Gly Thr Asp Ala His Met Asn Glu 65 70 75 80

Tyr Ile Gly Gln His Asp Glu Arg Arg Ala Trp Ile Thr Gly Phe Thr 85 90 95

Thr Asp Ser Arg Tyr Trp Thr Gln Ala Glu Arg Gln Met Asp Cys Asn 120 Trp Glu Leu His Lys Glu Val Gly Thr Thr Pro Ile Val Thr Trp Leu Leu Thr Glu Ile Pro Ala Gly Gly Arg Val Gly Phe Asp Pro Phe Leu Leu Ser Ile Asp Thr Trp Glu Ser Tyr Asp Leu Ala Leu Gln Gly Ser 170 Asn Arg Gln Leu Val Ser Ile Thr Thr Asn Leu Val Asp Leu Val Trp 185 Gly Ser Glu Arg Pro Pro Val Pro Asn Gln Pro Ile Tyr Ala Leu Gln 200 Glu Ala Phe Thr Gly Ser Thr Trp Gln Glu Lys Val Ser Gly Val Arg 215 220 Ser Gln Met Gln Lys His Gln Lys Val Pro Thr Ala Val Leu Leu Ser 230 235 Ala Leu Glu Glu Thr Ala Trp Leu Phe Asn Leu Arg Ala Ser Asp Ile 245 250 Pro Tyr Asn Pro Phe Phe Tyr Ser Tyr Thr Leu Leu Thr Asp Ser Ser Ile Arg Leu Phe Ala Asn Lys Ser Arg Phe Ser Ser Glu Thr Leu Ser 280 Tyr Leu Asn Ser Ser Cys Thr Gly Pro Met Cys Val Gln Ile Glu Asp 290 Tyr Ser Gln Val Arg Asp Ser Ile Gln Ala Tyr Ser Leu Gly Asp Val 310 315 Arg Ile Trp Ile Gly Thr Ser Tyr Thr Met Tyr Gly Ile Tyr Glu Met 325 330 Ile Pro Arg Glu Lys Leu Val Thr Asp Thr Tyr Ser Pro Val Met Met 345 Thr Lys Ala Val Lys Asn Ser Lys Glu Gln Ala Leu Leu Lys Ala Ser 355 His Val Arg Asp Ala Val Ala Val Ile Arg Tyr Leu Val Trp Leu Glu Lys Asn Val Pro Lys Gly Thr Val Asp Glu Phe Ser Gly Ala Glu Ile 385 Val Asp Lys Phe Arg Gly Glu Glu Gln Phe Ser Ser Gly Pro Ser Phe 410

Glu Thr Ile Ser Ala Ser Gly Leu Asn Ala Ala Leu Ala His Tyr Ser 420 425 430

Pro Thr Lys Glu Leu Asn Arg Lys Leu Ser Ser Asp Glu Met Tyr Leu 435 440 445

Leu Asp Ser Gly Gly Gln Tyr Trp Asp Gly Thr Thr Asp Ile Thr Arg 450 455 460

Thr Val His Trp Gly Thr Pro Ser Ala Phe Gln Lys Glu Ala Tyr Thr 465 470 475 480

Arg Val Leu Ile Gly Asn Ile Asp Leu Ser Arg Leu Ile Phe Pro Ala 485 490 495

Ala Thr Ser Gly Arg Met Val Glu Ala Phe Ala Arg Arg Ala Leu Trp 500 505 510

Asp Ala Gly Leu Asn Tyr Gly His Gly Thr Gly His Gly Ile Gly Asn 515 520 525

Phe Leu Cys Val His Glu Trp Pro Val Gly Phe Gln Ser Asn Asn Ile 530 540

Ala Met Ala Lys Gly Met Phe Thr Ser Ile Glu Pro Gly Tyr Tyr Lys 545 550 555 560

Asp Gly Glu Phe Gly Ile Arg Leu Glu Asp Val Ala Leu Val Val Glu 565 570 575

Ala Lys Thr Lys Tyr Pro Gly Glu Leu Pro Asp Leu Val Val Ser Phe 580 585 590

Val Pro Tyr Asp Arg Asn Leu Ile Asp Val Ser Leu Leu Ser Pro Glu 595 600 605

His Leu Gln Tyr Leu Asn Arg Tyr Tyr Gln Thr Ile Arg Glu Lys Val 610 615 620

Gly Pro Glu Leu Gln Arg Arg Gln Leu Leu Glu Glu Phe Glu Trp Leu 625 635 640

Gln Gln His Thr Glu Pro Leu Ala Ala Arg Ala Pro Asp Thr Ala Ser 645 650 655

Trp Ala Ser Val Leu Val Val Ser Thr Leu Ala Ile Leu Gly Trp Ser 660 665 670

Val

<210> 848

<211> 1082

<212> DNA

<213> homo sapiens

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| gtgctgccga | catttatcat   | ctccatctgt | ttcttcggcc | tcctagggaa | cctttttgtc | 180  |
| ctgttggtct | tcctcctgcc   | ccggcggcaa | ctgaacgtgg | cagaaatcta | cctggccaac | 240  |
| ctggcagcct | ctgatctggt   | gtttgtcttg | ggcttgccct | tctgggcaga | gaatatctgg | 300  |
| aaccagttta | actggccttt   | cggagccctc | ctctgccgtg | tcatcaacgg | ggtcatcaag | 360  |
| gccaatttgt | tcatcagcat   | cttcctggtg | gtggccatca | gccaggaccg | ctaccgcgtg | 420  |
| ctggtgcacc | ctatggccag   | cggaaggcag | cagcggcgga | ggcaggcccg | ggtcacctgc | 480  |
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| caagccgtcc | cagatctgaa   | catcaccgcc | tgcatcctgc | tectececa  | tgaggcctgg | 600  |
| cactttgcaa | ggattgtgga   | gttaaatatt | ctgggtttcc | tcctaccact | ggctgcgatc | 660  |
| gtcttcttca | actaccacat   | cctggcctcc | ctgcgaacgc | gggaggaggt | cagcaggaca | 720  |
| agagtgcagg | ggccgaagga   | tagcaagacc | acagcgctga | tcctcacgct | cgtggttgcc | 780  |
| ttcctggtct | gctgggcccc   | ttaccacttc | tttgccttcc | tggaattctt | attccaggtg | 840  |
| caagcagtcc | gaggctgctt   | ttgggaggac | ttcattgacc | tgggcctgca | attggccaac | 900  |
| ttctttgcct | tcactaacag   | ctccctgaat | ccagtaattt | atgtctttgt | gggccggctc | 960  |
| ttcaggacca | aggtctggga   | actttataaa | caatgcaccc | ctaaaagtct | tgctccaata | 1020 |
| tcttcatccc | ataggaaaga   | aatcttccaa | cttttctggc | ggaattaaaa | cagcattgaa | 1080 |
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<211> 353

<212> PRT

<213> homo sapiens

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Trp Asp Leu Leu His Arg Val Leu Pro Thr Phe Ile Ile Ser Ile Cys 35 40 45

Phe Phe Gly Leu Leu Gly Asn Leu Phe Val Leu Leu Val Phe Leu Leu

50 55 60

Pro Arg Arg Gln Leu Asn Val Ala Glu Ile Tyr Leu Ala Asn Leu Ala 65 70 75 80

Ala Ser Asp Leu Val Phe Val Leu Gly Leu Pro Phe Trp Ala Glu Asn 85 90 95

Ile Trp Asn Gln Phe Asn Trp Pro Phe Gly Ala Leu Leu Cys Arg Val

Ile Asn Gly Val Ile Lys Ala Asn Leu Phe Ile Ser Ile Phe Leu Val

Val Ala Ile Ser Gln Asp Arg Tyr Arg Val Leu Val His Pro Met Ala 130 135 140

Ser Gly Arg Gln Gln Arg Arg Arg Gln Ala Arg Val Thr Cys Val Leu 145 150 155 160

Ile Trp Val Val Gly Gly Leu Leu Ser Ile Pro Thr Phe Leu Leu Arg 165 170 175

Ser Ile Gln Ala Val Pro Asp Leu Asn Ile Thr Ala Cys Ile Leu Leu 180 185 190

Leu Pro His Glu Ala Trp His Phe Ala Arg Ile Val Glu Leu Asn Ile 195 200 205

Leu Gly Phe Leu Leu Pro Leu Ala Ala Ile Val Phe Phe Asn Tyr His 210 215 220

Ile Leu Ala Ser Leu Arg Thr Arg Glu Glu Val Ser Arg Thr Arg Val 225 230 235 240

Gln Gly Pro Lys Asp Ser Lys Thr Thr Ala Leu Ile Leu Thr Leu Val 245 250 255

Val Ala Phe Leu Val Cys Trp Ala Pro Tyr His Phe Phe Ala Phe Leu 260 265 270

Glu Phe Leu Phe Gln Val Gln Ala Val Arg Gly Cys Phe Trp Glu Asp 275 280 285

Phe Ile Asp Leu Gly Leu Gln Leu Ala Asn Phe Phe Ala Phe Thr Asn 290 295 300

Ser Ser Leu Asn Pro Val Ile Tyr Val Phe Val Gly Arg Leu Phe Arg 305 310 315 320

Thr Lys Val Trp Glu Leu Tyr Lys Gln Cys Thr Pro Lys Ser Leu Ala 325 330 335

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Asn

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| gtcttctgcc                                       | tgcacaagag | cagctgcacg | gtggcagaga | tctacctggg | gaacctggcc | 300  |
| gcagcagacc                                       | tgatcctggc | ctgcgggctg | cccttctggg | ccatcaccat | ctccaacaac | 360  |
| ttcgactggc                                       | tctttgggga | gacgctctgc | cgcgtggtga | atgccattat | ctccatgaac | 420  |
| ctgtacagca                                       | gcatctgttt | cctgatgctg | gtgagcatcg | accgctacct | ggccctggtg | 480  |
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| tacagcgatg                                       | agggccacaa | cgtcaccgct | tgtgtcatca | gctacccatc | cctcatctgg | 660  |
| gaagtgttca                                       | ccaacatgct | cctgaatgtc | gtgggcttcc | tgctgcccct | gagtgtcatc | 720  |
| accttctgca                                       | cgatgcagat | catgcaggtg | ctgcggaaca | acgagatgca | gaagttcaag | 780  |
| gagatccaga                                       | cggagaggag | ggccacggtg | ctagtcctgg | ttgtgctgct | gctattcatc | 840  |
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| ctctccagct                                       | gccaggacga | gcgcatcatc | gatgtaatca | cacagatcgc | ctccttcatg | 960  |
| gcctacagca                                       | acagctgcct | caacccactg | gtgtacgtga | tcgtgggcaa | gcgcttccga | 1020 |
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| attcagatgg                                       | agaactccat | gggcacactg | cggacctcca | tctccgtgga | acgccagatt | 1140 |
| cacaaactgc                                       | aggactgggc | agggagcaga | cagtgagcaa | acgccagcag | ggctgctgtg | 1200 |
| aatttgtgta                                       | aggattgagg | gacagttgct | tttcagcatg | ggcccaggaa | tgccaaggag | 1260 |
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| cgagcagggt | gctgtgggtg   | atatggacag | cagaaggggg   | agaccaaggt | tccagctcaa | 1980 |
| ccaataacta | ttgcacaacc   | acctgtccct | gcctcagttc   | ccttttatgt | aacatgaagt | 2040 |
| cgttgtgagg | gttaaaggca   | gtaacaggta | taaagtactt   | agaaaagcaa | agggtgctac | 2100 |
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| tcggcagtgc | cagggcagca   | ctcattcact | tgataaatga   | atatttatta | gctggttgga | 2640 |
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| gaggctagaa | ccaagaaggg   | ctagaacctg | gaggggctag   | aacctagaga | agctaaaacc | 2760 |
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| ctgtagagct | agaacatgga   | gagctagaac | ccggcaggct   | agaacctggc | aagctagaac | 3120 |
| ctggagggaa | tgaacctgga   | gggctagaac | ctggagaatg   | agaaaaattt | acatggcaaa | 3180 |

| gagcccataa | atcctgacca | atccaactct | gaattttaaa | gcaaaagcgt | gaaaaaaaag | 3240 |
|------------|------------|------------|------------|------------|------------|------|
| attccctcct | tacccccaac | ccactctttt | ttcccaccac | ccactctcct | ctgcctcagt | 3300 |
| aagtatctgg | aggaagaaaa | caggtgaaag | aagaagtaaa | aaccatttag | tattagtatt | 3360 |
| agaatgaagt | caaactgtgc | cacacatggt | gaatgaaaaa | aaaaaaaag  | aggctgtgtt | 3420 |
| ttgtcacaca | gggcagtcat | tcagcaccag | agcacgtgat | ggtctgagac | tctcttagga | 3480 |
| gcagagctct | gccgcaatgg | ccatgtgggg | atccacacct | ggtctgaggg | gcaactgagt | 3540 |
| ctgcgggaga | agagcggccc | tatgcatggt | gtagatgccc | tgataaagaa | catctgtcct | 3600 |
| gtgaaagact | caatgagctg | ttatgttgta | aacaggaagc | atttcacatc | caaacgagaa | 3660 |
| aatcatgtaa | acatgtgtct | tttctgtaga | gcataataaa | tggatgaggt | ttttgcaaaa | 3720 |
| aaaaaaaaaa | aaa        |            |            |            |            | 3733 |

<210> 851 .

<211> 391

<212> PRT

<213> homo sapiens

<400> 851

Met Phe Ser Pro Trp Lys Ile Ser Met Phe Leu Ser Val Arg Glu Ala 1 5 10 15

Ser Val Pro Thr Thr Ala Ser Phe Ser Ala Asp Met Leu Asn Val Thr 20 25 30

Leu Gln Gly Pro Thr Leu Asn Gly Thr Phe Ala Gln Ser Lys Cys Pro 35 40 45

Gln Val Glu Trp Leu Gly Trp Leu Asn Thr Ile Gln Pro Pro Phe Leu
50 60

Trp Val Leu Phe Val Leu Ala Thr Leu Glu Asn Ile Phe Val Leu Ser 65 70 75 80

Val Phe Cys Leu His Lys Ser Ser Cys Thr Val Ala Glu Ile Tyr Leu 85 90 95

Gly Asn Leu Ala Ala Ala Asp Leu Ile Leu Ala Cys Gly Leu Pro Phe 100 105 110

Trp Ala Ile Thr Ile Ser Asn Asn Phe Asp Trp Leu Phe Gly Glu Thr
115 120 125

Leu Cys Arg Val Val Asn Ala Ile Ile Ser Met Asn Leu Tyr Ser Ser 130 135 140

Ile Cys Phe Leu Met Leu Val Ser Ile Asp Arg Tyr Leu Ala Leu Val 145 150 155 160

| Lys                          | Thr        | Met                       | Ser               | Met<br>165 | Gly        | Arg        | Met        | Arg        | Gly<br>170 | Val        | Arg        | Trp        | Ala        | Lys<br>175 | Leu        |
|------------------------------|------------|---------------------------|-------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Tyr                          | Ser        | Leu                       | Val<br>180        | Ile        | Trp        | Gly        | Cys        | Thr<br>185 | Leu        | Leu        | Leu        | Ser        | Ser<br>190 | Pro        | Met        |
| Leu                          | Val        | Phe<br>195                | Arg               | Thr        | Met        | Lys        | Glu<br>200 | Tyr        | Ser        | Asp        | Glu        | Gly<br>205 | His        | Asn        | Val        |
| Thr                          | Ala<br>210 | Cys                       | Val               | Ile        | Ser        | Туr<br>215 | Pro        | Ser        | Leu        | Ile        | Trp<br>220 | Glu        | Val        | Phe        | Thr        |
| Asn<br>225                   | Met        | Leu                       | Leu               | Asn        | Val<br>230 | Val        | Gly        | Phe        | Leu        | Leu<br>235 | Pro        | Leu        | Ser        | Val        | Ile<br>240 |
| Thr                          | Phe        | Cys                       | Thr               | Met<br>245 | Gln        | Ile        | Met        | Gln        | Val<br>250 | Leu        | Arg        | Asn        | Asn        | Glu<br>255 | Met        |
| Gln                          | Lys        | Phe                       | <b>Lys</b><br>260 | Glu        | Ile        | Gln        | Thr        | Glu<br>265 | Arg        | Arg        | Ala        | Thr        | Val<br>270 | Leu        | Val        |
| Leu                          | Val        | Val<br>275                | Leu               | Leu        | Leu        | Phe        | Ile<br>280 | Ile        | Cys        | Trp        | Leu        | Pro<br>285 | Phe        | Gln        | Ile        |
| Ser                          | Thr<br>290 | Phe                       | Leu               | Asp        | Thr        | Leu<br>295 | His        | Arg        | Leu        | Gly        | Ile<br>300 | Leu        | Ser        | Ser        | Cys        |
| Gln<br>305                   | Asp        | Glu                       | Arg               | Ile        | Ile<br>310 | Asp        | Val        | Ile        | Thr        | Gln<br>315 | Ile        | Ala        | Ser        | Phe        | Met<br>320 |
| Ala                          | Tyr        | Ser                       | Asn               | Ser<br>325 | Cys        | Leu        | Asn        | Pro        | Leu<br>330 | Val        | Tyr        | Val        | Ile        | Val<br>335 | Gly        |
| Lys                          | Arg        | Phe                       | Arg<br>340        | Lys        | Lys        | Ser        | Trp        | Glu<br>345 | Val        | Tyr        | Gln        | Gly        | Val<br>350 | Cys        | Gln        |
| Lys                          | Gly        | Gly<br>355                | Cys               | Arg        | Ser        | Glu        | Pro<br>360 | Ile        | Gln        | Met        | Glu        | Asn<br>365 | Ser        | Met        | Gly        |
| Thr                          | Leu<br>370 | Arg                       | Thr               | Ser        | Ile        | Ser<br>375 | Val        | Glu        | Arg        | Gln        | Ile<br>380 | His        | Lys        | Leu        | Gln        |
| Asp<br>385                   | Trp        | Ala                       | Gly               | Ser        | Arg<br>390 | Gln        |            |            |            |            |            |            |            |            |            |
| <210<br><211<br><212<br><213 | > 1<br>> E | 352<br>.284<br>NA<br>.omo | sapi              | ens        |            |            |            |            |            |            |            |            |            |            |            |
| <400<br>atgc                 |            | 52<br>ta t                | cgac              | tacc       | t gc       | tcct       | cctg       | ctg        | gttg       | gac        | tact       | ggcc       | ct t       | tctc       | atggc      |
| cagc                         | tgca       | .cg t                     | tgag              | catg       | a tg       | gtga       | gagt       | tgc        | agta       | aca        | gctc       | ccac       | ca g       | caga       | ttctg      |
| gaga                         | cagg       | tg a                      | gggc              | tccc       | с са       | gcct       | caag       | ata        | gccc       | ctg        | ccaa       | tgct       | ga c       | tttg       | ccttc      |

| cgcttctact | acctgatcgc | ttcggagacc | ccggggaaga | acatctttt  | ctccccgctg | 240  |
|------------|------------|------------|------------|------------|------------|------|
| agcatctcgg | cggcctacgc | catgctttcc | ctgggggcct | gctcacacag | ccgcagccag | 300  |
| atccttgagg | gcctgggctt | caacctcacc | gagctgtctg | agtccgatgt | ccataggggc | 360  |
| ttccagcacc | tcctgcacac | tctcaacctc | cccggccatg | ggctggaaac | acgcgtgggc | 420  |
| agtgctctgt | tcctgagcca | caacctgaag | ttccttgcaa | aattcctgaa | tgacaccatg | 480  |
| gccgtctatg | aggctaaact | cttccacacc | aacttctacg | acactgtggg | cacaatccag | 540  |
| cttatcaacg | accacgtcaa | gaaggaaact | cgagggaaga | ttgtggattt | ggtcagtgag | 600  |
| ctcaagaagg | acgtcttgat | ggtgctggtg | aattacattt | acttcaaagc | cctgtgggag | 660  |
| aaaccattca | tttcctcaag | gaccactccc | aaagacttct | atgttgatga | gaacacaaca | 720  |
| gtccgggtgc | ccatgatgct | gcaggaccag | gagcatcact | ggtatcttca | tgacagatac | 780  |
| ttgccctgct | cggtgctacg | gatggattac | aaaggagacg | caaccgtgtt | tttcattctc | 840  |
| cctaaccaag | gcaaaatgag | ggagattgaa | gaggttctga | ctccagagat | gctaatgagg | 900  |
| tggaacaact | tgttgcggaa | gaggaatttt | tacaagaagc | tagagttgca | tcttcccaag | 960  |
| ttctccattt | ctggctccta | tgtattagat | cagattttgc | ccaggctggg | cttcacggat | 1020 |
| ctgttctcca | agtgggctga | cttatccggc | atcaccaaac | agcaaaaact | ggaggcatcc | 1080 |
| aaaagtttcc | acaaggccac | cttggacgtg | gatgaggctg | gcaccgaggc | tgcagcagcc | 1140 |
| acgacgttcg | cgatcaaatt | cttctctgcc | cagaccaatc | gccacatcct | gcgattcaac | 1200 |
| cggcccttcc | ttgtggtgat | cttttccacc | agcacccaga | gtgtcctctt | tctgggcaag | 1260 |
| gtcgtcgacc | ccacgaaacc | atag       |            |            |            | 1284 |

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<210> 853
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Leu Ser His Gly Gln Leu His Val Glu His Asp Gly Glu Ser Cys Ser 20 25 30

Asn Ser Ser His Gln Gln Ile Leu Glu Thr Gly Glu Gly Ser Pro Ser 35 40 45

Leu Lys Ile Ala Pro Ala Asn Ala Asp Phe Ala Phe Arg Phe Tyr Tyr

<sup>&</sup>lt;211> 427

<sup>&</sup>lt;212> PRT

<sup>&</sup>lt;213> homo sapiens

<sup>&</sup>lt;400> 853

50 55 60

Leu Ile Ala Ser Glu Thr Pro Gly Lys Asn Ile Phe Phe Ser Pro Leu 75 Ser Ile Ser Ala Ala Tyr Ala Met Leu Ser Leu Gly Ala Cys Ser His 90 Ser Arg Ser Gln Ile Leu Glu Gly Leu Gly Phe Asn Leu Thr Glu Leu 105 Ser Glu Ser Asp Val His Arg Gly Phe Gln His Leu Leu His Thr Leu 120 Asn Leu Pro Gly His Gly Leu Glu Thr Arg Val Gly Ser Ala Leu Phe 135 Leu Ser His Asn Leu Lys Phe Leu Ala Lys Phe Leu Asn Asp Thr Met 150 155 Ala Val Tyr Glu Ala Lys Leu Phe His Thr Asn Phe Tyr Asp Thr Val 165 170 Gly Thr Ile Gln Leu Ile Asn Asp His Val Lys Lys Glu Thr Arg Gly 185 Lys Ile Val Asp Leu Val Ser Glu Leu Lys Lys Asp Val Leu Met Val 200 Leu Val Asn Tyr Ile Tyr Phe Lys Ala Leu Trp Glu Lys Pro Phe Ile 215 Ser Ser Arg Thr Thr Pro Lys Asp Phe Tyr Val Asp Glu Asn Thr Thr 230 235 Val Arg Val Pro Met Met Leu Gln Asp Gln Glu His His Trp Tyr Leu 245 250 His Asp Arg Tyr Leu Pro Cys Ser Val Leu Arg Met Asp Tyr Lys Gly 265 Asp Ala Thr Val Phe Phe Ile Leu Pro Asn Gln Gly Lys Met Arg Glu 280 Ile Glu Glu Val Leu Thr Pro Glu Met Leu Met Arg Trp Asn Asn Leu 295 Leu Arg Lys Arg Asn Phe Tyr Lys Lys Leu Glu Leu His Leu Pro Lys 310 315 Phe Ser Ile Ser Gly Ser Tyr Val Leu Asp Gln Ile Leu Pro Arg Leu 325 Gly Phe Thr Asp Leu Phe Ser Lys Trp Ala Asp Leu Ser Gly Ile Thr Lys Gln Gln Lys Leu Glu Ala Ser Lys Ser Phe His Lys Ala Thr Leu

|                              |              | 355                        |            |            |            |            | 360   |            |            |            |            | 365  |       |            |            |        |   |
|------------------------------|--------------|----------------------------|------------|------------|------------|------------|-------|------------|------------|------------|------------|------|-------|------------|------------|--------|---|
| Asp                          | Val<br>370   | Asp                        | Glu        | Ala        | Gly        | Thr<br>375 | Glu   | Ala        | Ala        | Ala        | Ala<br>380 | Thr  | Thr   | Phe        | Ala        |        |   |
| Ile<br>385                   | Lys          | Phe                        | Phe        | Ser        | Ala<br>390 | Gln        | Thr   | Asn        | Arg        | His<br>395 | Ile        | Leu  | Arg   | Phe        | Asn<br>400 |        |   |
| Arg                          | Pro          | Phe                        | Leu        | Val<br>405 | Val        | Ile        | Phe   | Ser        | Thr<br>410 | Ser        | Thr        | Gln  | Ser   | Val<br>415 | Leu        |        |   |
| Phe                          | Leu          | Gly                        | Lys<br>420 | Val        | Val        | Asp        | Pro   | Thr<br>425 | Lys        | Pro        |            |      |       |            |            |        |   |
| <210<br><211<br><212<br><213 | .> 1<br>!> I | 354<br>1284<br>DNA<br>nomo | sapi       | iens       |            |            |       |            |            |            |            |      |       |            |            |        |   |
| <400<br>atgc                 |              | 354<br>tta 1               | tcgac      | ctaco      | ct go      | ctcct      | cctg  | r ctg      | gttg       | gac        | tact       | ggcc | ct    | ttctc      | atgg       | c 60   | ) |
| cago                         | tgca         | acg 1                      | ttgag      | gcato      | ga to      | ggtga      | agagt | . tgc      | agta       | aca        | gcto       | ccac | ca ç  | gcaga      | ttct       | g 120  | ) |
| gaga                         | cago         | gtg a                      | agggo      | ctccc      | cc ca      | agcct      | caag  | ata        | ıgccc      | ctg        | ccaa       | tgct | ga d  | ctttc      | rcctt      | c 180  | ) |
| cgct                         | tcta         | act a                      | accto      | gatco      | gc tt      | cgga       | ıgacc | ccg        | ggga       | aga        | acat       | cttt | tt (  | ctccc      | cgct       | g 240  | ) |
| agca                         | tctc         | gg (                       | cggcc      | ctaco      | gc ca      | atgct      | ttcc  | cto        | aaaa       | ıcct       | gcto       | acac | ag d  | ccgca      | gcca       | g 300  | ) |
| atco                         | ttga         | agg g                      | gcctg      | ggct       | t ca       | acct       | cacc  | gag        | ctgt       | ctg        | agto       | cgat | gt    | ccata      | aggg       | c 360  | ) |
| ttcc                         | agca         | icc t                      | cctg       | gcaca      | ac to      | ctcaa      | cctc  | ccc        | ggcc       | atg        | ggct       | ggaa | ac a  | atgcg      | tggg       | c 420  | ) |
| agtg                         | ctct         | gt t                       | cato       | gagco      | ca ca      | acct       | gaag  | ttc        | cttg       | rcaa       | aatt       | cctg | raa 1 | gaca       | .ccat      | g 480  | ) |
| gccg                         | tcta         | itg a                      | aggct      | aaac       | ct ct      | tcca       | cacc  | aac        | ttct       | acg        | acac       | tgtg | igg ( | cacaa      | tcca       | g 540  | ) |
| ctta                         | tcaa         | cg a                       | accac      | gtca       | a ga       | agga       | aact  | cga        | ıggga      | aga        | ttgt       | ggat | tt g  | ggtca      | gtga       | g 600  | ) |
| ctca                         | agaa         | igg a                      | acgto      | ttga       | it go      | gtgct      | ggtg  | aat        | taca       | ttt        | actt       | caaa | gc d  | cctgt      | ggga       | g 660  | ) |
| aaac                         | catt         | ca t                       | ttcc       | tcaa       | ıg ga      | ccac       | tccc  | aaa        | gact       | tct        | atgt       | tgat | ga ç  | gaaca      | caac       | a 720  | , |
| gtcc                         | gggt         | gc d                       | ccatg      | ratgo      | t go       | agga       | ccag  | gag        | cato       | act        | ggta       | tctt | .ca t | gaca       | gata       | c 780  | į |
| ttgc                         | cctg         | rct d                      | ggtg       | rctac      | g ga       | tgga       | ttac  | aaa        | ggag       | acg        | caac       | cgtg | tt t  | ttca       | ttct       | c 840  | ļ |
| ccta                         | acca         | ag g                       | gcaaa      | atga       | ıg gg      | agat       | tgaa  | gag        | gttc       | tga        | ctcc       | agag | at g  | gctaa      | tgag       | g 900  | į |
| tgga                         | acaa         | ct t                       | gttg       | rcgga      | a ga       | ıggaa      | tttt  | tac        | aaga       | agc        | taga       | gttg | ca t  | ctto       | ccaa       | g 960  |   |
| ttct                         | ccat         | tt d                       | ctggc      | tcct       | a tg       | rtatt      | agat  | cag        | attt       | tgc        | ccag       | gctg | gg d  | cttca      | cggat      | 1020   |   |
| ctgt                         | tctc         | ca a                       | agtgg      | gctg       | a ct       | tato       | cggc  | atc        | acca       | aac        | agca       | aaaa | ct ç  | gagg       | catco      | c 1080 |   |
|                              |              |                            |            |            |            |            |       |            |            |            |            |      |       |            |            |        |   |

1140

aaaagtttcc acaaggccac cttggacgtg gatgaggctg gcaccgaggc tgcagcagcc

|        | ac         | cacç              | gttcg                    | g cga                   | atcaa                  | att        | cttc       | tctc       | gaa a       | agac        | caat       | c go       | caca                    | tcct        | gcg         | attcaac    |
|--------|------------|-------------------|--------------------------|-------------------------|------------------------|------------|------------|------------|-------------|-------------|------------|------------|-------------------------|-------------|-------------|------------|
|        | cg         | gcco              | ttcc                     | ttg                     | ıtggt                  | gat        | cttt       | tcca       | ıcc a       | gcac        | ccag       | ıa gt      | gtcc                    | tctt        | tct         | gggcaag    |
|        | gt         | cgto              | gaco                     | cca                     | ecgaa                  | acc        | atag       |            |             |             |            |            |                         |             |             |            |
|        | <2:<br><2: | 10><br>11><br>12> | 855<br>427<br>PRT<br>hom | •                       | pien                   | s          |            |            |             |             |            |            |                         |             |             |            |
|        | <40        | 00>               | 855                      |                         |                        |            |            |            |             |             |            |            |                         |             |             |            |
|        | Met<br>1   | : Hi              | s Le                     | u Il                    | e As <sub>l</sub><br>5 | р Ту       | r Lei      | ı Le       | u Lei       | ı Let<br>10 | ı Le       | u Vai      | l Gly                   | y Lei       | ս Lei<br>15 | ı Ala      |
|        | Leu        | ı Se              | r Hi                     | s Gl <sub>3</sub><br>20 | y Gli                  | n Lei      | ı His      | s Va       | 1 Glu<br>25 | ı His       | s As       | p Gly      | y Glu                   | 1 Se1<br>30 | Cys         | s Ser      |
|        | Asn        | Se:               | r Se:<br>35              | r His                   | s Glr                  | n Glr      | ı Ile      | Let<br>40  | u Glu       | ı Thr       | Gly        | √ Glu      | u Gl <sub>y</sub><br>45 | 7 Ser       | Pro         | Ser        |
| :      | Leu        | Ly:<br>50         | s Ile                    | e Ala                   | a Pro                  | Ala        | Asr<br>55  | ı Alá      | a Asp       | Ph∈         | e Ala      | a Phe      | e Arg                   | Phe         | · Tyr       | Tyr        |
|        |            |                   |                          |                         |                        | 70         |            |            |             |             | 75         |            |                         |             |             | Leu<br>80  |
|        |            |                   |                          |                         | 65                     |            |            |            | Leu         | 90          |            |            |                         |             | 95          |            |
|        |            |                   |                          | 100                     |                        |            |            |            | Leu<br>105  |             |            |            |                         | 110         |             |            |
|        |            |                   | 110                      |                         |                        |            |            | 120        |             |             |            |            | 125                     |             |             |            |
|        |            | 230               |                          |                         |                        |            | 133        |            | Thr         |             |            | 140        |                         |             |             |            |
| 1<br>1 | eu<br>45   | Ser               | His                      | Asn                     | Leu                    | Lys<br>150 | Phe        | Leu        | Ala         | Lys         | Phe<br>155 | Leu        | Asn                     | Asp         | Thr         | Met<br>160 |
| A      | la         | Val               | Tyr                      | Glu                     | Ala<br>165             | Lys        | Leu        | Phe        | His         | Thr<br>170  | Asn        | Phe        | Tyr                     | Asp         | Thr<br>175  | Val        |
| G      | ly         | Thr               | Ile                      | Gln<br>180              | Leu                    | Ile        | Asn        | Asp        | His<br>185  | Val         | Lys        | Lys        | Glu                     | Thr<br>190  | Arg         | Gly        |
| L      | ys         | Ile               | Val<br>195               | Asp                     | Leu                    | Val        | Ser        | Glu<br>200 | Leu         | Lys         | Lys        | Asp        | Val<br>205              | Leu         | Met         | Val        |
| Le     | ∋u ˈ       | Val<br>210        | Asn                      | Tyr                     | Ile                    | Tyr        | Phe<br>215 | Lys        | Ala         | Leu         | Trp        | Glu<br>220 | Lys                     | Pro         | Phe         | Ile        |

Ser Ser Arg Thr Thr Pro Lys Asp Phe Tyr Val Asp Glu Asn Thr Thr 230 235 Val Arg Val Pro Met Met Leu Gln Asp Gln Glu His His Trp Tyr Leu 245 250 His Asp Arg Tyr Leu Pro Cys Ser Val Leu Arg Met Asp Tyr Lys Gly 265 Asp Ala Thr Val Phe Phe Ile Leu Pro Asn Gln Gly Lys Met Arg Glu 280 Ile Glu Glu Val Leu Thr Pro Glu Met Leu Met Arg Trp Asn Asn Leu 295 Leu Arg Lys Arg Asn Phe Tyr Lys Lys Leu Glu Leu His Leu Pro Lys 310 315 Phe Ser Ile Ser Gly Ser Tyr Val Leu Asp Gln Ile Leu Pro Arg Leu Gly Phe Thr Asp Leu Phe Ser Lys Trp Ala Asp Leu Ser Gly Ile Thr 345 Lys Gln Gln Lys Leu Glu Ala Ser Lys Ser Phe His Lys Ala Thr Leu Asp Val Asp Glu Ala Gly Thr Glu Ala Ala Ala Ala Thr Thr Phe Ala 375 Ile Lys Phe Phe Ser Ala Gln Thr Asn Arg His Ile Leu Arg Phe Asn Arg Pro Phe Leu Val Val Ile Phe Ser Thr Ser Thr Gln Ser Val Leu 410 Phe Leu Gly Lys Val Val Asp Pro Thr Lys Pro 420 <210> 856 <211> 3428 <212> DNA <213> homo sapiens <220> <221> misc\_feature <222> (711)..(711)<223> wherein N is either an "T" or a "C".

<220>

<221> misc\_feature

<222> (2085)..(2085)

<223> wherein N is either an "C" or a "G".

<400> 856

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| tgcccaccct | ggctcccaaa | accctccaaa | acaaaagacc | agaaaagcac | tctccaccca | 120  |
| gcagccaaac | gcctccttct | tgacgccagc | ccccaccctc | tgtctgctcg | agcccaggaa | 180  |
| aggcctgaag | gaacaggccg | gggaaggagc | cctccctctc | tcccttgtcc | ctccatccac | 240  |
| ccagcgccgg | catctggaga | ccctatggcc | cgggctcact | ggggctgctg | cccctggctg | 300  |
| gtcctcctct | gtgcttgtgc | ctggggccac | acaaagccac | tggaccttgg | agggcaggat | 360  |
| gtgagaaatt | gttccaccaa | cccccttac  | cttccagtta | ctgtggtcaa | taccacaatg | 420  |
| tcactcacag | ccctccgcca | gcagatgcag | acccagaatc | tctcagccta | catcatccca | 480  |
| ggcacagatg | ctcacatgaa | cgagtacatc | ggccaacatg | acgagaggcg | tgcgtggatt | 540  |
| acaggcttta | cagggtctgc | aggaactgca | gtggtgacta | tgaagaaagc | agctgtctgg | 600  |
| accgacagtc | gctactggac | tcaggctgag | cggcaaatgg | actgtaattg | ggagctccat | 660  |
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| cgtgtgggtt | ttgacccctt | cctcttgtcc | attgacacct | gggagagtta | tgatctggcc | 780  |
| ctccaaggct | ctaacagaca | gctggtgtcc | atcacaacca | atcttgtgga | cctggtatgg | 840  |
| ggatcagaga | ggccaccggt | tccaaatcaa | cccatttatg | ccctgcagga | ggcattcaca | 900  |
| gggagcactt | ggcaggagaa | agtatctggc | gtccgaagcc | agatgcagaa | gcatcaaaag | 960  |
| gtcccgactg | ccgtccttct | gtcggcgctt | gaggagacgg | cctggctctt | caaccttcga | 1020 |
| gccagtgaca | tcccctataa | ccccttcttc | tattcctaca | cgctgctcac | agactcttct | 1080 |
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Asn Thr Thr Met Ser Leu Thr Ala Leu Arg Gln Gln Met Gln Thr Gln 50 55 60

Asn Leu Ser Ala Tyr Ile Ile Pro Gly Thr Asp Ala His Met Asn Glu 65 70 75 80

Tyr Ile Gly Gln His Asp Glu Arg Arg Ala Trp Ile Thr Gly Phe Thr 85 90 95

Gly Ser Ala Gly Thr Ala Val Val Thr Met Lys Lys Ala Ala Val Trp
100 105 110

Thr Asp Ser Arg Tyr Trp Thr Gln Ala Glu Arg Gln Met Asp Cys Asn 115 120 125

Trp Glu Leu His Lys Glu Val Gly Thr Thr Pro Ile Val Thr Trp Leu 130 135 140

Leu Thr Glu Ile Pro Ala Gly Gly Arg Val Gly Phe Asp Pro Phe Leu 145 150 155 160

Leu Ser Ile Asp Thr Trp Glu Ser Tyr Asp Leu Ala Leu Gln Gly Ser 165 170 175

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Glu Ala Phe Thr Gly Ser Thr Trp Gln Glu Lys Val Ser Gly Val Arg 210 215 220

Ser Gln Met Gln Lys His Gln Lys Val Pro Thr Ala Val Leu Leu Ser 235 235 240

Ala Leu Glu Glu Thr Ala Trp Leu Phe Asn Leu Arg Ala Ser Asp Ile 245 250 255

Pro Tyr Asn Pro Phe Phe Tyr Ser Tyr Thr Leu Leu Thr Asp Ser Ser Ile Arg Leu Phe Ala Asn Lys Ser Arg Phe Ser Ser Glu Thr Leu Ser 280 Tyr Leu Asn Ser Ser Cys Thr Gly Pro Met Cys Val Gln Ile Glu Asp 295 Tyr Ser Gln Val Arg Asp Ser Ile Gln Ala Tyr Ser Leu Gly Asp Val 310 Arg Ile Trp Ile Gly Thr Ser Tyr Thr Met Tyr Gly Ile Tyr Glu Met 330 Ile Pro Arg Glu Lys Leu Val Thr Asp Thr Tyr Ser Pro Val Met Met 340 Thr Lys Ala Val Lys Asn Ser Lys Glu Gln Ala Leu Leu Lys Ala Ser 360 His Val Arg Asp Ala Val Ala Val Ile Arg Tyr Leu Val Trp Leu Glu 375 Lys Asn Val Pro Lys Gly Thr Val Asp Glu Phe Ser Gly Ala Glu Ile 390 395 Val Asp Lys Phe Arg Gly Glu Glu Gln Phe Ser Ser Gly Pro Ser Phe 405 Glu Thr Ile Ser Ala Ser Gly Leu Asn Ala Ala Leu Ala His Tyr Ser 425 Pro Thr Lys Glu Leu Asn Arg Lys Leu Ser Ser Asp Glu Met Tyr Leu 440 Leu Asp Ser Gly Gly Gln Tyr Trp Asp Gly Thr Thr Asp Ile Thr Arg Thr Val His Trp Gly Thr Pro Ser Ala Phe Gln Lys Glu Ala Tyr Thr Arg Val Leu Ile Gly Asn Ile Asp Leu Ser Arg Leu Ile Phe Pro Ala 490 Ala Thr Ser Gly Arg Met Val Glu Ala Phe Ala Arg Arg Ala Leu Trp 505 Asp Ala Gly Leu Asn Tyr Gly His Gly Thr Gly His Gly Ile Gly Asn 520 Phe Leu Cys Val His Glu Trp Pro Val Gly Phe Gln Ser Asn Asn Ile 535 Ala Met Ala Lys Gly Met Phe Thr Ser Ile Glu Pro Gly Tyr Tyr Lys 550 555 560

| Asp G          | ly Glu        | Phe        | Gly<br>565 | Ile        | Arg        | Leu        | Glu        | Asp<br>570 | Val        | Ala        | Leu        | Val        | Val<br>575 | Glu        |    |
|----------------|---------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|----|
| Ala L          | ys Thr        | Lys<br>580 | Tyr        | Pro        | Gly        | Glu        | Leu<br>585 | Pro        | Asp        | Leu        | Val        | Val<br>590 | Ser        | Phe        |    |
| Val P          | ro Tyr<br>595 | Asp        | Arg        | Asn        | Leu        | Ile<br>600 | Asp        | Val        | Ser        | Leu        | Leu<br>605 | Ser        | Pro        | Glu        |    |
| His L<br>6     | eu Gln<br>10  | Tyr        | Leu        | Asn        | Arg<br>615 | Tyr        | Tyr        | Gln        | Thr        | Ile<br>620 | Arg        | Glu        | Lys        | Val        |    |
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| men dern men best best frem | -400-          |                           |    |
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| i <b>z</b>                  |                |                           |    |
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| anggoogude teetuggaat tgagtgetaa aggeaaggte t | 41         |
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| 2 222 3 3 3 3 3 3                             | 41         |
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| 2211> 41                                      |            |
| 212> DNA                                      |            |
| 213> homo sapiens                             |            |
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| Third Tenn Thirty Tenn   |                |            |            |        |  |   |
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| uş<br>uş   |                |                      |     |
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|  |                | gact caaaccaaat cact | 24  |
|  | 2              |                      | ∠4  |
|  | 2010s          | 1016                 |     |
|  | <210><br><211> |                      |     |
|  | <b>→ムエエ</b> /  | 41                   |     |

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| ja ziz   | 12207         | nome suprems    |         |    |
| <u> </u>   | <400>         | 1218            |         |    |
| E. F   | cccacg        | agga ggagccag   |         | 18 |
| teriff than start H  |               |                 |         |    |
| THE STATE OF THE PARTY OF THE P | <210>         | 1219            |         |    |
| u'i  | <211>         |                 |         |    |
|  | <212>         |                 |         |    |
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| The first that there are   |               |                 |         |    |
| n i  | <210>         | 1220            |         |    |
|  | <211>         |                 |         |    |
| ine ir   | <212>         |                 |         |    |
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| le: F  |        |                          | 10  |
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| 17-7   | <211>  |                          |     |
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| 71. E  | <213>  | Homo sapiens             |     |
| the second that are the second that the second | <400>  | 1225                     |     |
| Ci   |        | ratta tttttgagtg cacagtc |     |
| #  | gaaccg | acca teelegageg cacagee  | 27  |
| ļas k  |        |                          |     |
| Fil.   | <210>  | 1226                     |     |
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| 'br#<br>ii.ĕ   | <212>  |                          |     |
| the free that the  | <213>  | Homo sapiens             |     |
| had<br>had   | <400>  | 1226                     |     |
| E""  |        | ttag ccaagtcaaa gaga     | - 4 |
|  | geadae | ceag ceaagecaaa gaga     | 24  |
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|  | gttaco | caaat acaacaacaa taaccagtat t | 31  |
|  |        | •                             | 21  |
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| 1224   | <212>  |                               |     |
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| with the tree died to the tree to the tree to the tree tree tree tree tree tree tree   |        |                               |     |
| 15   | <400>  | 1231                          |     |
| 마다<br>마루   | tttgaa | acca agaatctcct ttaattt       | 27  |
| is<br>Fa   |        |                               |     |
| :  <br>:74   | -010:  | 1000                          |     |
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| ļ  | <213>  | Homo sapiens                  |     |
| Marrie Trans. Tage of the Contract of the Cont | <400>  | 1232                          |     |
| Const.   |        | cctg ctcatttg                 |     |
| j  | cycccc | coty ctcattty                 | 18  |
| - i  |        |                               |     |
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|                             | <400>          | 1237                    |           |  |  |     |
|                             | gatgca         | actc tagcttcttg         | taaaaatt  |  |  | 28  |
| E.J                         |                |                         |           |  |  |     |
| THE THE THE THE THE THE THE | <210>          | 1238                    |           |  |  |     |
| w.j                         | <211>          |                         |           |  |  |     |
|                             | <212>          |                         |           |  |  |     |
| 1                           | <213>          | Homo sapiens            |           |  |  |     |
| ii<br>iii                   | <400>          | 1238                    |           |  |  |     |
|                             |                | gcat ataccaatga         | tctgactct |  |  | 29  |
| n ae<br>Las                 |                |                         |           |  |  |     |
| l i                         | <210>          | 1230                    |           |  |  |     |
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|                             |                | acga geegaeeeea         | ccagege   |  |  | 27  |
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|                             |                | tctt tcagatgagt         | tgatttc   |  |  | 277 |
|                             | O O O          | coagacgage              | oguecee   |  |  | 27  |
|                             | <210>          | 1241                    |           |  |  |     |
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|  |        | (14)(14)  |    |  |  |
|  |        | wherein "n" equals a C3 phosphoramidite linker. |    |  |  |
|  |        |   |    |  |  |
|  |        |   |    |  |  |
|  | <400>  |   |    |  |  |
|  | cctcat | cgat gtengeetge tgtetee                         | 27 |  |  |
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|  | <210>  | 1243  |    |  |  |
| ne is  | <211>  |   |    |  |  |
| <br>   | <212>  |   |    |  |  |
| le≠#<br> **{   |        | Homo sapiens                                    |    |  |  |
| bef<br>Es  |        |   |    |  |  |
| er#<br>F#  | <400>  | 1243  |    |  |  |
| <pre>&lt;212&gt; DNA  <pre>     &lt;213&gt; Homo sapiens  400&gt; 1243  gtggtttgca aaccttagca tgcac  </pre> <pre>     &lt;210&gt; 1244</pre></pre> |        |   |    |  |  |
| 126<br>[]  |        |   |    |  |  |
| # E  | <210>  | 1244  |    |  |  |
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|  | <212>  |   |    |  |  |
| 11   | <213>  | Homo sapiens                                    |    |  |  |
| der Frank Turk Term H  |        |   |    |  |  |
| is f   | <220>  |   |    |  |  |
| ing<br>Pe  | <221>  | misc_feature                                    |    |  |  |
| i≥ <b>f</b><br>:=±   |        | (12)(12)  |    |  |  |
|  | <223>  | wherein "n" equals a C3 phosphoramidite linker. |    |  |  |
|  |        |   |    |  |  |
|  | <400>  | 1244  |    |  |  |
|  |        | ccca gnccccagag gt                              | 22 |  |  |
|  |        |   | 22 |  |  |
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|  | <210>  |   |    |  |  |
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|  |        | ggcc ccagaggtyc tecca                           | 25 |  |  |
|  | -      |   | 23 |  |  |
|  |        |   |    |  |  |
|  | <210>  | 1246  |    |  |  |
|  | <211>  | 27  |    |  |  |
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           (12)..(12)
    <223>
           wherein "n" equals a C3 phosphoramidite linker.
    <220>
    <221>
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    <222>
           (14)..(14)
    <223>
           wherein "n" equals a C3 phosphoramidite linker.
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                                                                            27
    <210> 1247
    <211>
          27
    <212>
          DNA
    <213>
          Homo sapiens
    <220>
    <221>
          misc_feature
    <222>
           (18)..(18)
    <223>
           wherein "n" equals a C3 phosphoramidite linker.
Li
    <220>
<221>
          misc_feature
    <222>
#
           (21)..(21)
   <223>
          wherein "n" equals a C3 phosphoramidite linker.
Fiz E
T.
[ ]
   <400> 1247
IJ
   cccggsctct tccttcangc ntttcct
                                                                           27
£.;
---
   <210>
          1248
    <211>
          27
    <212>
          DNA
          Homo sapiens
    <213>
   <220>
   <221>
          misc_feature
   <222>
          (12)..(12)
          wherein "n" equals a C3 phosphoramidite linker.
   <223>
   <400> 1248
   agaaaagctt gnctcaggca gatcagc
                                                                           27
   <210>
          1249
   <211>
          25
   <212>
          DNA
   <213> Homo sapiens
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    tacctaaata aataataaaa gccag
                                                                          25
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    <211> 27
    <212> DNA
    <213> Homo sapiens
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    <221> misc_feature
    <222> (17)..(17)
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    gcaacaagtc tcctttncag aacagtc
                                                                          27
    <210> 1251
    <211>
          27
    <212>
          DNA
    <213>
          Homo sapiens
    <220>
    <221> misc_feature
    <222>
          (19)..(19)
H
    <223> wherein "n" equals a C3 phosphoramidite linker.
Ľ1
Œ
---
   <400> 1251
   agacttcacc tcttggcanc ttggctt
14
                                                                         27
L.J
    <210> 1252
    <211> 25
    <212> DNA
    <213> Homo sapiens
    <400> 1252
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                                                                         25
    <210> 1253
    <211> 27
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   <221>
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         (16)..(16)
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                                                                           27
    <210> 1254
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           (9)..(9)
    <223> wherein "n" equals a C3 phosphoramidite linker.
    <220>
    <221>
          misc_feature
    <222>
           (19)..(19)
C)
    <223> wherein "n" equals a C3 phosphoramidite linker.
The state
    <400> 1254
ttaccctang gctgacctnc caggaac
                                                                           27
()
   <210> 1255
    <211> 25
¥
    <212> DNA
ļas ķ
   <213> Homo sapiens
Ľ.,
    <400> 1255
    tcacctggct cctcaccgag attcc
                                                                           25
£.}
ļ::
    <210> 1256
    <211>
          27
    <212>
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          Homo sapiens
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    <221> misc_feature
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    <223> wherein "n" equals a C3 phosphoramidite linker.
   <220>
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          (19)..(19)
   <223> wherein "n" equals a C3 phosphoramidite linker.
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                                                                          27
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           25
    <212>
           DNA
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           Homo sapiens
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                                                                           25
    <210>
          1258
    <211>
           25
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           DNA
    <213>
          Homo sapiens
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    aagagtttgt ttgaggaaag ggttt
                                                                           25
    <210>
          1259
    <211>
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Ľ,
    <212>
          DNA
    <213>
           Homo sapiens
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<223>
          wherein "n" equals a C3 phosphoramidite linker.
<220>
ļ.
    <221>
          misc_feature
r.
    <222>
           (18)..(18)
    <223>
           wherein "n" equals a C3 phosphoramidite linker.
E.
w= i=
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   <221>
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   <222>
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   <223>
          wherein "n" equals a C3 phosphoramidite linker.
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                                                                          27
   <210>
          1261
   <211>
          25
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|---|----------------|---|------|
|   |                | nome papters                                      |      |
|   | <400>          | 1261  |      |
|   | ccagt          | aattt atgtetttgt gggee                            | 25   |
|   |                |   |      |
|   | <210>          |   |      |
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|   | <212>          |   |      |
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|   | <400>          | 1262  |      |
|   | atcct          | gaatt atccaagtgg gccct                            | 25   |
|   |                |   |      |
|   | <210>          | 1263  |      |
|   | <211>          |   |      |
|   | <212>          |   |      |
| ,   | <213>          | Homo sapiens                                      |      |
| þ≈b<br>m≈s  | <400>          | 1263  |      |
| se)<br>Pří  |                | ggaaa caaataacaa gtatc                            | 25   |
| ma ş  |                |   | 25   |
| Order result by the result than the result to the time. | <210>          | 1264  |      |
| F4  | <211>          |   |      |
| T.  | <212>          |   |      |
| 1 2   | <213>          | Homo sapiens                                      |      |
|   | ~220s          |   |      |
|   | <220>          | misc_feature                                      |      |
|   | <222>          | (18)(18)  |      |
| # #   | <223>          | wherein "n" equals a C3 phosphoramidite linker.   |      |
| Tandy There Thieft Lane                                 |                | reservation.                                      |      |
| ≠#<br>=±  | <400>          | 1264  |      |
|   |                | ater ggtaatgnee tetetta                           | 0.77 |
|   |                | 33  | 27   |
|   | -010-          | 1065  |      |
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|   | <220>          |   |      |
|   | <221>          | misc_feature                                      |      |
|   |                | (14)(14) wherein "n" oquals a C2 phagphaggid at 1 |      |
|   |                | wherein "n" equals a C3 phosphoramidite linker.   |      |
|   | -400           | 1065  |      |
|   | <400>          | 1265  |      |
|   | ccggga         | cctg ctgnacagag tgctgcc                           | 27   |
|   |                |   |      |
|   | <210>          |   |      |
|   | <211>          | 27  |      |

```
<212> DNA
    <213> Homo sapiens
    <220>
    <221>
          misc_feature
    <222>
          (9)..(9)
    <223>
          wherein "n" equals a C3 phosphoramidite linker.
    <220>
    <221>
          misc_feature
    <222>
          (11)..(11)
    <223> wherein "n" equals a C3 phosphoramidite linker.
    <400> 1266
    tgaaccaana ngcttggctt tcttatc
                                                                            27
    <210>
          1267
    <211>
          25
lus L
    <212>
          DNA
<213>
           Homo sapiens
the state of
    <400> 1267
                                                                            25
    gagccctcct ctgccgtgtc atcaa
u.į
L.
T t
   <210>
          1268
    <211>
           25
Ŧ
    <212>
          DNA
---
    <213> Homo sapiens
r.
1.7
    <400> 1268
                                                                             25
    agatctgaac atcaccgcct gcatc
| 12 E
<210>
          1269
    <211>
           27
    <212>
           DNA
    <213>
          Homo sapiens
    <220>
    <221>
          misc_feature
    <222>
           (14)..(14)
          wherein "n" equals a C3 phosphoramidite linker.
    <220>
    <221> misc_feature
    <222>
           (17)..(17)
           wherein "n" equals a C3 phosphoramidite linker.
    <400> 1269
                                                                            27
    cactgggcaa atcngcnggg ctccccc
```

```
<210>
            1270
     <211>
            27
     <212>
            DNA
     <213>
            Homo sapiens
    <220>
     <221>
            misc_feature
     <222>
            (3)..(3)
     <223>
            wherein "n" equals a C3 phosphoramidite linker.
    <220>
    <221>
            misc_feature
    <222>
            (16)..(16)
    <223>
            wherein "n" equals a C3 phosphoramidite linker.
    <400> 1270
    gtnggaatga caggtngaag ggagcca
                                                                                27
j-Ł
The first first
    <210>
            1271
    <211>
            27
    <212>
           DNA
Till the same
    <213>
            Homo sapiens
ų.
<220>
<221>
           misc_feature
譯
    <222>
            (16)..(16)
in j
    <223>
            wherein "n" equals a C3 phosphoramidite linker.
the state of
[.]
    <400> 1271
    ttacaacata acagcncatt gagtctt
                                                                                27
first.
    <210>
           1272
    <211>
           25
    <212>
           DNA
    <213>
           Homo sapiens
    <400> 1272
    taacagctca ttgagtcttk cacag
                                                                                25
    <210>
           1273
    <211>
           25
    <212>
           DNA
    <213>
           Homo sapiens
    <400> 1273
    gggcagtcat tcagcaccag agcac
                                                                                25
    <210>
           1274
    <211> 25
```

```
<212>
            DNA
     <213>
           Homo sapiens
     <400> 1274
     ccctagaaga gtgtgaaaag gaatg
                                                                              25
     <210>
            1275
     <211>
            27
     <212>
           DNA
     <213>
            Homo sapiens
    <220>
    <221>
           misc_feature
    <222>
           (15)..(15)
    <223>
            wherein "n" equals a C3 phosphoramidite linker.
    <400> 1275
    attccttcac tcatntatna aacaaaa
                                                                              27
THE HAND WITH THE
    <210>
           1276
    <211>
           25
    <212>
           DNA
    <213>
           Homo sapiens
The state of
    <400> 1276
tacgttgagc gatgagcccc aggtt
                                                                              25
:::
ļas ķ
    <210> 1277
<211> 27
f.,
    <212> DNA
<213>
           Homo sapiens
Est.
    <220>
    <221> misc_feature
    <222> (16)..(16)
    <223>
           wherein "n" equals a C3 phosphoramidite linker.
    <220>
    <221>
           misc_feature
    <222>
           (19)..(19)
    <223>
           wherein "n" equals a C3 phosphoramidite linker.
    <400> 1277
    acaggggctg gggatngcna aatacac
                                                                             27
    <210>
          1278
    <211>
          22
    <212> DNA
    <213> Homo sapiens
```

|   | <b>14007</b> | 1278   |    |
|---|--------------|--|----|
|   | gtggtg       | ggca cggagtcctc ac   | 22 |
|   |              |  |    |
|   | <210>        | 1279   |    |
|   | <211>        |  |    |
|   | <212>        |  |    |
|   |              | Homo sapiens   |    |
|   |              |  |    |
|   | <220>        |  |    |
|   |              | misc_feature   |    |
|   |              | (14)(14)   |    |
|   | <223>        | wherein "n" equals a C3 phosphoramidite linker.  |    |
|   |              |  |    |
|   | <400>        | 1279   |    |
|   |              | gagg ggcncacctg ggcgcgg  | 27 |
|   | 555          | 3433 330 3303033   |    |
|   |              |  |    |
|   | <210>        | 1280   |    |
|   | <211>        | 27   |    |
| nr p                                      | <212>        |  |    |
| Triff sauft their anish trast throp truck | <213>        | Homo sapiens   |    |
| :: <b>,</b>                               | -220         |  |    |
|   | <220>        | misc_feature   |    |
| ij  |              | (7)(7)   |    |
| . E                                       |              | wherein "n" equals a C3 phosphoramidite linker.  |    |
|   |              | The second secon |    |
| i   |              |  |    |
| 12/4                                      | <400>        | 1280   |    |
| Trial Vans traff True 15                  | tttttg       | nagc cttaaaaccc ttccttc  | 27 |
| : ,                                       |              |  |    |
| ļ.  | <210>        | 1281   |    |
|   | <211>        |  |    |
| ıs <del>İ</del>                           | <212>        |  |    |
|   | <213>        | Homo sapiens   |    |
|   |              |  |    |
|   | <400>        | 1281   |    |
|   | gcagaa       | gctg tcctgtttcc tgggt  | 25 |
|   |              |  |    |
|   | <210>        | 1282   |    |
|   | <211>        | 27   |    |
|   | <212>        |  |    |
|   | <213>        | Homo sapiens   |    |
|   |              | ·  |    |
|   | <220>        |  |    |
|   |              | misc_feature   |    |
|   |              | (19)(19)   |    |
|   | <223>        | wherein "n" equals a C3 phosphoramidite linker.  |    |
|   |              |  |    |
|   | <400>        | 1282   |    |
|   |              | cca ggaggctgnt gacatca   | 27 |
|   |              |  |    |

```
<210> 1283
                   <211>
                                             22
                   <212>
                                             DNA
                   <213>
                                            Homo sapiens
                  <220>
                  <221>
                                            misc_feature
                  <222>
                                             (13)..(13)
                  <223>
                                             wherein "n" equals a C3 phosphoramidite linker.
                  <400> 1283
                  cattgcacca aanctggatg gc
                                                                                                                                                                                                                                                                                                            22
                  <210>
                                            1284
                  <211>
                                            27
                  <212>
                                            DNA
                  <213> Homo sapiens
The first state of the state of
                 <220>
                 <221>
                                           misc_feature
                 <222>
                                             (7)..(7)
                 <223> wherein "n" equals a C3 phosphoramidite linker.
 ų.į
 <220>
11.1
                 <221>
                                          misc_feature
                 <222>
ij
                                            (15)..(15)
                                            wherein "n" equals a C3 phosphoramidite linker.
F12 E
Fig
<400> 1284
                gctttcnggt ggtgncagtg cccagtc
                                                                                                                                                                                                                                                                                                           27
ļ.
                <210>
                                        1285
                <211>
                                         25
                <212>
                                          DNA
                <213>
                                         Homo sapiens
                <400> 1285
               gagcgaaggg ctggctgagg tcatg
                                                                                                                                                                                                                                                                                                          25
               <210> 1286
               <211> 25
               <212> DNA
               <213> Homo sapiens
               <400> 1286
               accttttgct tgatttttca ctgta
                                                                                                                                                                                                                                                                                                         25
              <210> 1287
              <211> 25
```

```
<212> DNA
    <213> Homo sapiens
    <400> 1287
    ggctcccaat actgattctg ctcca
                                                                          25
    <210> 1288
    <211> 27
    <212> DNA
    <213> Homo sapiens
    <220>
    <221> misc_feature
    <222> (18)..(18)
    <223> wherein "n" equals a C3 phosphoramidite linker.
    <400> 1288
    acccacagca ccctgctnga ccgtctc
                                                                          27
Enrich
T.
    <210> 1289
    <211> 27
ļ.,
    <212>
          DNA
<213> Homo sapiens
W.
<220>
<221>
          misc_feature
¥
    <222>
          (16)..(16)
ļas iz
    <223>
          wherein "n" equals a C3 phosphoramidite linker.
1
    <400> 1289
L.J
    agggttgcag ggaganctgg gatgagg
                                                                          27
12.5
    <210> 1290
    <211> 27
    <212>
          DNA
    <213>
          Homo sapiens
    <220>
    <221> misc_feature
    <222>
          (11)..(11)
    <223>
          wherein "n" equals a C3 phosphoramidite linker.
    <400> 1290
   gctgggatga ngyctggggt gctgcct
                                                                          27
    <210> 1291
    <211>
          25
    <212> DNA
    <213> Homo sapiens
```

|   |       | 1291<br>gga gaaaaactg tgctg                              | 25 |
|---|-------|--|----|
|   |       |  |    |
|   |       | 1292   |    |
|   |       | 27   |    |
|   | <212> | Homo sapiens   |    |
|   | 12137 | nomo saprono   |    |
|   | <220> |  |    |
|   |       | misc_feature   |    |
|   | <222> | (17)(17) wherein "n" equals a C3 phosphoramidite linker. |    |
|   | 12201 |  |    |
|   | <400> | 1292   |    |
|   |       | ctcc aagtctntgt cccacaa                                  | 27 |
|   |       |  |    |
|   | <210> | 1293   |    |
|   | <211> |  |    |
| =k<br>=ŧ  | <212> | DNA  |    |
| :#<br>:1  | <213> | Homo sapiens   |    |
| त्राप्त क्षेत्रको मान्यति प्रतिकृति प्रतिकृति प्रतिकृति प्रतिकृति प्रतिकृति प्रतिकृति प्रतिकृति प्रतिकृति प्र | <400> | 1293   |    |
|   |       | ggaa ctgaggcagg gacag                                    | 25 |
| : F   |       |  |    |
|   | <210> | 1294   |    |
| , F   | <211> |  |    |
| · is  | <212> |  |    |
|   | <213> | Homo sapiens   |    |
| ment han had had  | <220> |  |    |
|   |       | misc_feature   |    |
|   | <222> | (15)(15) wherein "n" equals a C3 phosphoramidite linker. |    |
| i p   | <223> | wherein "n" equals a C3 phosphoramidice inmer:           |    |
|   |       |  |    |
|   | <220> | miles facture  |    |
|   |       | misc_feature<br>(18)(18)                                 |    |
|   | <223> | wherein "n" equals a C3 phosphoramidite linker.          |    |
|   |       | •  |    |
|   | <400> | 1294   |    |
|   |       | gcta cgtanatntg aggcatc .                                | 27 |
|   | 555   |  |    |
|   | <210> | 1295   |    |
|   | <211> |  |    |
|   | <212> |  |    |
|   | <213> | Homo sapiens   |    |
|   | <400> | 1295   |    |
|   |       | cgctg gggaaagaaa ggaca                                   | 25 |
|   | _     |  |    |

```
<210> 1296
    <211>
           25
    <212>
           DNA
    <213>
           Homo sapiens
    <400> 1296
    gagatgcggt aggaagactg ttaag
                                                                            25
    <210>
           1297
    <211>
           27
    <212>
           DNA
    <213> Homo sapiens
    <220>
    <221>
          misc_feature
    <222>
           (10)..(10)
    <223> wherein "n" equals a C3 phosphoramidite linker.
---
    <220>
125
    <221>
           misc_feature
<222>
           (15)..(15)
C.
    <223>
          wherein "n" equals a C3 phosphoramidite linker.
Ų,
<400> 1297
Ľ1
    aagctggaan cctcnaggat gggttca
                                                                            27
ļ.
    <210>
          1298
Fly
    <211>
           22
[.]
    <212>
           DNA
<213>
           Homo sapiens
L.
ne je
    <400> 1298
    aagctctacc acgccttctc ag
                                                                            22
    <210> 1299
    <211> 27
    <212>
          DNA
    <213>
          Homo sapiens
    <220>
    <221>
           misc_feature
    <222>
           (10)..(10)
    <223>
           wherein "n" equals a C3 phosphoramidite linker.
    <220>
    <221>
           misc_feature
    <222>
          (13)..(13)
    <223>
          wherein "n" equals a C3 phosphoramidite linker.
```

```
<400> 1299
    ggaacttgtn ctnctggtcc cagagca
                                                                              27
    <210> 1300
    <211> 25
    <212> DNA
    <213> Homo sapiens
    <400> 1300
    tactggcgaa gacagcggcg atggg
                                                                              25
    <210> 1301
    <211>
           22
    <212>
           DNA
    <213>
           Homo sapiens
    <400> 1301
    ccagcaggag agccaggacc ca
                                                                              22
ļ.
Hand the great form
    <210> 1302
    <211>
           22
    <212>
           DNA
    <213> Homo sapiens
4.7
ĻŃ
    <400> 1302
[][1
    ccaagcgcaa ggtgagcagg gg
                                                                              22
¥
j.
    <210>
           1303
<211>
           22
    <212>
           DNA
Paris Paris
    <213>
           Homo sapiens
la i
er.
    <220>
    <221> misc_feature
    <222>
           (12)..(12)
    <223>
           wherein "n" equals a C3 phosphoramidite linker.
    <400> 1303
    aggtcggacc ancttttccc aa
                                                                              22
    <210> 1304
    <211>
           27
    <212> DNA
    <213> Homo sapiens
    <220>
    <221>
           misc_feature
    <222>
           (14)..(14)
    <223>
           wherein "n" equals a C3 phosphoramidite linker.
```

```
<220>
    <221>
           misc_feature
    <222>
           (17)..(17)
    <223>
           wherein "n" equals a C3 phosphoramidite linker.
    <220>
    <221>
           misc_feature
    <222>
           (20)..(20)
    <223>
           wherein "n" equals a C3 phosphoramidite linker.
    <400> 1304
    tccctatctt tgcnacnctn atgctgt
                                                                            27
    <210> 1305
    <211>
          27
    <212>
          DNA
    <213>
          Homo sapiens
<220>
    <221>
           misc_feature
    <222>
           (19)..(19)
           wherein "n" equals a C3 phosphoramidite linker.
    <223>
4.7
11.5
    <400> 1305
acccatactg acccttttng caagicc
                                                                            27
#
as k
    <210>
           1306
r.,
    <211>
           27
    <212>
           DNA
    <213>
           Homo sapiens
je: h
    <220>
    <221>
           misc_feature
    <222>
           (10)..(10)
    <223>
           wherein "n" equals a C3 phosphoramidite linker.
    <220>
    <221>
           misc_feature
    <222>
           (21)..(21)
    <223>
           wherein "n" equals a C3 phosphoramidite linker.
    <400> 1306
                                                                            27
    agagcagttn gaggtcaggt ncaggga
    <210>
           1307
    <211>
           25
    <212>
          DNA
    <213> Homo sapiens
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```
<400> 1307
    caaaatcctg cctaatgatg agtgc
                                                                          25
    <210> 1308
    <211> 27
    <212> DNA
    <213>
          Homo sapiens
    <220>
    <221>
           misc_feature
    <222>
           (8)..(8)
    <223>
           wherein "n" equals a C3 phosphoramidite linker.
    <400> 1308
    tcccttgnac rcaggagtcc ccatccc
                                                                          27
    <210> 1309
   <211>
          27
<212>
          DNA
The state
    <213>
           Homo sapiens
    <220>
<221>
          misc_feature
1
    <222>
          (10)..(10)
    <223> wherein "n" equals a C3 phosphoramidite linker.
22 =
    <220>
    <221>
          misc_feature
<222>
          (14)..(14)
    <223> wherein "n" equals a C3 phosphoramidite linker.
ļ.Į
f.;
    <400> 1309
    gctgtgaagn tcgnggagtt gcccacc
                                                                          27
    <210> 1310
    <211>
          22
    <212> DNA
    <213> Homo sapiens
    <400> 1310
    aaggcrggga tggggactcc tg
                                                                          22
    <210>
          1311
    <211>
           22
    <212>
           DNA
    <213>
          Homo sapiens
    <220>
    <221> misc_feature
    <222> (3)..(3)
```

```
<223> wherein "n" equals a C3 phosphoramidite linker.
    <400> 1311
    tgnggccacc ccagctgtgt ca
                                                                            22
    <210> 1312
    <211> 25
    <212> DNA
    <213> Homo sapiens
    <400> 1312
    atgtgtgtca cgttctgcca tcacc
                                                                           25
    <210> 1313
    <211> 27
    <212> DNA
    <213> Homo sapiens
THE REAL PROPERTY.
    <220>
    <221>
          misc_feature
    <222>
           (17)..(17)
    <223>
          wherein "n" equals a C3 phosphoramidite linker.
4.7
<400> 1313
atctggaact tatagtnttg aaaagaa
                                                                           27
¥
4=4
    <210>
          1314
<211>
          27
E.
    <212>
          DNA
    <213>
          Homo sapiens
4.1
    <220>
    <221> misc_feature
    <222>
          (14)..(14)
    <223> wherein "n" equals a C3 phosphoramidite linker.
    <220>
    <221> misc_feature
    <222>
          (19)..(19)
          wherein "n" equals a C3 phosphoramidite linker.
    <400> 1314
   gaggggttcc agangtacnt atattta
                                                                           27
    <210> 1315
    <211>
          25
    <212> DNA
   <213> Homo sapiens
```

| aagtag  | acaa ggaatgggtg tgaaa   | 25  |
|---------|---|---|
|         |   |   |
| <210>   | 1316  |   |
|         |   |   |
|         |   |   |
|         |   |   |
|         |   |   |
| <220>   |   |   |
|         |   |   |
|         |   |   |
| ~223/   | wherein in equals a C3 phosphoramidite linker.  |   |
|         |   |   |
| <220>   |   |   |
|         |   |   |
|         |   |   |
| <223>   | wherein "n" equals a C3 phosphoramidite linker.   |   |
|         |   |   |
| <220>   |   |   |
|         | misc_feature  |   |
|         |   |   |
| <223>   | wherein "n" equals a C3 phosphoramidite linker.   |   |
|         |   |   |
| <220>   |   |   |
|         | misc feature  |   |
|         |   |   |
|         |   |   |
|         |   |   |
| 400     | 1016  |   |
|         |   | 2.7   |
| ccacaa  | ceae nanchaaant tagtage   | 27  |
|         |   |   |
|         |   |   |
|         |   |   |
|         |   |   |
| <213>   | Homo sapiens  |   |
| <400>   | 1317  |   |
|         |   | 25  |
|         |   |   |
| -210-   | 1310  |   |
|         |   |   |
|         |   |   |
|         |   |   |
|         |   |   |
| <400>   | 1318  |   |
| cacatgt | taaa tgactcagaa taatg   | 25  |
|         |   |   |
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|                         |                |  |     |
|                         | <210>          | 1335   |     |
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| ( )<br>( )                             | tytaaa         | acga cggccagtca | gigagaicii | gecaetge  | 38  |
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| 411                                    | <210>          | 1338            |            |           |     |
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| ır İr  | <211>                   | DNA                 |              |           |    |
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| The first from the first from |        |                 |            |           |   |     |
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| 'ldaf<br>B FE                 | <211>  | 39              |            |           |   |     |
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| cgcaaa  | adoga oggodageeg geedeeedaa eegeegeed  | 39  |
| 010     | 1221   |   |
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| 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1  |                         | Homo sapiens                      |            |           |    |
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|  | \Z1J/          | HOMO Sapiens    |            |           |     |
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39

<400> 1398

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| karb<br>cura               | <211>                               | 39                |            |           |  |     |
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| r.<br>He                   |                                     |                   |            |           |  |     |
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| - jz                       |                                     |                   |            |           |  |     |
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|                            |                                     | 5 .55 5 5         |            |           |  | ر د |
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|  | J ======= | 5 555-55            | -3333-34   |           | 32  |
|  | <210>     | 1417                |            |           |     |
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|  | <213>     | Homo sapiens        |            |           |     |

|   | <400><br>tgtaaaa | 1417<br>acga cggccagtca | gatctgggtt | ccaaagaca | 39  |
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|   | <213>            | Homo sapiens            |            |           |     |
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|   | <213>            | Homo sapiens            |            |           |     |
|   | <400>            | 1419                    |            |           |     |
|   | tgtaaa           | acga cggccagtgg         | ctccaggaaa | atgagtctt | 39  |
| Harry 1970 Will Street Will Will Harry 1970 His Co. (1970) Will Street Will Will Will Will Will Will Will Wil |                  |                         |            |           |     |
| #** <b>[</b>  | <210>            | 1420                    |            |           |     |
| Head<br>Head  | <211>            | 39                      |            |           |     |
| ilias j   | <212>            | DNA                     |            |           |     |
| 4,12  | <213>            | Homo sapiens            |            |           |     |
| 100 M   | <400>            | 1420                    |            |           |     |
| (II   |                  | acga cggccagtaa         | aagctggtcc | gacctttta | 39  |
| E   |                  |                         |            |           |     |
| hi b  | <210>            | 1421                    |            |           |     |
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| 4:4   | <212>            |                         |            |           |     |
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| The state that they they  |                  |                         |            |           |     |
| ja z je   | <400>            | 1421                    |            |           | 2.0 |
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|   | -210:            | 1.422                   |            |           |     |
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|  |                  | 1425            |            |           |      |
|  | <211><br><212>   | 39              |            |           |      |
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|  | 12137            | nomo bapieno    |            |           |      |
|  |                  | 1425            |            |           |      |
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|  | <210>            | 1426            |            |           |      |
| ija k  | <211>            |                 |            |           |      |
|  | <212>            |                 |            |           |      |
| C. J. A. L. B. |                  | Homo sapiens    |            |           |      |
| Trees,   | <400>            | 1426            |            |           |      |
|  |                  | acga cggccagtgc | ccaqtttqtt | catatcaat | 39   |
| Della Comment                                      |                  |                 |            |           |      |
|  | <210>            | 1427            |            |           |      |
| iji  | <211>            |                 |            |           |      |
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| treet, good truth dock                             | <400>            | 1427            |            |           |      |
| l.j  |                  | acga cggccagtcc | tgacagagcc | tgctgatac | . 39 |
| 11.  |                  |                 |            |           |      |
| 12   | <210>            | 1428            |            |           |      |
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|  |                  | 1429            |            |           |      |
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|  | ~4±3 <i>&gt;</i> | Homo sapiens    |            |           |      |
|  | <400>            | 1429            |            |           |      |
|  | tgtaaa           | acga cggccagtgc | cgtcagagtg | ctgtcttat | 39   |
|  | -010             | 1420            |            |           |      |
|  | <210><br><211>   |                 |            |           |      |
|  | · u              |                 |            |           |      |

|  | <212><br><213> | DNA<br>Homo sapiens                      |    |
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|  | <400>          | 1430                                     |    |
|  | tgtaaa         | acga cggccagttg acgagagtca attgaaagga    | 40 |
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|  | <400>          | 1431                                     |    |
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|  |                |  |    |
|  | <210>          | 1432                                     |    |
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| :::<br>:::5  | <400>          | 1432                                     |    |
| ***  | tgtaaa         | acga cggccagtaa atggcagctg tcaccatag     | 39 |
| The second was the second that the second se |                |  |    |
| Cur.   | <210>          | 1433                                     |    |
|  | <211>          | 42                                       |    |
| 1  | <212>          |  |    |
| I  | <213>          | Homo sapiens                             |    |
| := <u>L</u>  | <400>          | 1433                                     |    |
|  |                | acga cggccagttc tgcagagaaa ataaaccact ga | 42 |
| made there's and there's   |                |  |    |
| Į.   | <210>          | 1434                                     |    |
| 7  | <211>          | 40                                       |    |
| = =  | <212>          | DNA                                      |    |
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|  | <212>          |  |    |
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|  | . 5            | 5 55555-5-5-5-5-5-5-5-5-5-5-5            | 55 |
|  | <210>          | 1436                                     |    |
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|  |                | Homo sapiens                             |    |

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|  | <212>   |                 |            |           |    |
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|  | <400>   | 1437            |            |           |    |
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|  | <400>   | 1438            |            |           |    |
| ļ-;  | tgtaaa  | acga cggccagttg | ctttcaaaat | gcgatttct | 39 |
| THE THE BOTH BEING THE THE THE   | <210>   | 1439            |            |           |    |
| Ann A  | <211>   |                 |            |           |    |
| 12.4   | <212>   |                 |            |           |    |
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| ii<br>iin  |         |                 |            |           |    |
| fil.   | <210>   |                 |            |           |    |
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|  | <212>   |                 |            |           |    |
| The state of the s | <213>   | Homo sapiens    |            |           |    |
| ļk   | <400>   | 1440            |            | <b>.</b>  |    |
|  | tytaaa  | acga cggccagtct | tgetgtgtta | tccccaaga | 39 |
|  | <210>   | 1441            |            |           |    |
|  | <211>   | 39              |            |           |    |
|  | <212>   | DNA             |            |           |    |
|  | <213>   | Homo sapiens    |            |           |    |
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|  | <213>   | Homo sapiens    |            |           |    |
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|  |                | _               |            |           |     |
|  |                | 1443            |            |           |     |
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| (;: <b>j</b>   | <212>          |                 |            |           |     |
| There was direct that their the  | <213>          | Homo sapiens    |            |           |     |
| in F   | <400>          | 1445            |            |           |     |
| 4.11   |                | acga cggccagtca | caggaaggaa | cctctgaag | 39  |
|  | J              | 3 33 3          |            |           | 5,5 |
| The state of the s |                |                 |            |           |     |
| 11.3   | <210>          |                 |            |           |     |
| iį:  | <211>          |                 |            |           |     |
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|  | \Z13/          | nomo saprens    |            |           |     |
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| To the state of th | tgtaaa         | acga cggccagtcc | ttgcaaaatt | cctgaatga | 39  |
| [.]  |                |                 |            |           |     |
| us k   | <210>          | 1 / / 7         |            |           |     |
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|  | <212>          | DNA             |            |           |     |
|  | <213>          | Homo sapiens    |            |           |     |
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|  | caggaa         | acag ccacgaccag     | aageceeggg | gcccccgac | 33 |
| CONTRACTOR AND THE STATE OF THE |                |                     |            |           |    |
| i, i i i   |                | 1452                |            |           |    |
| H.J  | <211><br><212> |                     |            |           |    |
| Ti<br>Ci   |                | Homo sapiens        |            |           |    |
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| ir<br>Bask   | <400>          | 1452                |            |           |    |
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| 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1   |                |                     |            |           |    |
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| в.   | caggaa | acag ctatgaccat   | gcacatacca | cagaggagg  | 39 |
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|  | .010-  | 1450              |            |            |    |
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|  |        | DNA               |            |            |    |
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|  | . 100. | 1 4 5 0           |            |            |    |
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| jark   | <210>  | 1459              |            |            |    |
| ľ.   | <211>  | 39                |            |            |    |
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| in in the second   |        | Homo sapiens      |            |            |    |
| The Cart of the Ca | 72137  | nomo saprens      |            |            |    |
| jark.  | <400>  | 1459              |            |            |    |
|  |        | acag ctatgacctg   | tactactata | aagtctggt  | 39 |
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|  | ouggua | adag daacgaccac   | agogaogoog |            |    |
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|  | J J    | 5 - 5 - 5 - 5 - 5 | 555-       |            |    |

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| 1 J  | <400>                   | 1464            |            |           |    |
| L.   |                         | acag ctatgaccgg | agcagctgta | gcagtctgt | 39 |
| W.F  |                         | 3 3 33          | 3 3 3      |           |    |
| ui<br>Ci   | <210>                   | 1465            |            |           |    |
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| # .  | <212>                   |                 |            |           |    |
| ļus<br>um  |                         | Homo sapiens    |            |           |    |
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| haf<br>H:E   | <400>                   | 1465            |            |           |    |
| The state of the s | caggaaa                 | acag ctatgaccat | tgctctcttg | gggttttgt | 39 |
| ari.   |                         |                 |            |           |    |
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| near Team tends Team to the Team |                |                                       |     |
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| -7<br>18                         | .010-          | 1.470                                 |     |
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| Mary 12 Mary 12 Mary 14 Mary 1 | \215/          | nomo sapiens          |              |      |      |
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| P.A  | <211><br><212> | 39                    |              |      |      |
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| Hart Land, mag., Jorg.   | 12137          | nome suprens          |              |      |      |
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| 10 The Table 11 Th | <210><211><211><212><213> | 39                                |            |           |    |
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| THE THE PLANT CO   | <210><211><212><212><213> | 39                                |            |           |    |
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| ibia P   |        |                 |            |           |    |
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| ner<br>I : E   |        |                 |            |           |    |
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| ļ-i                                   |               |        |           |            |           |   |    |
| 10 1 10 1 10 1 10 1 10 1 10 1 10 1 10 | 040           | 4 40 6 |           |            |           |   |    |
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| West tren teet there                  | <b>\Z13</b> > | пошо   | sapiens   |            |           |   |    |
|                                       | <400>         | 1497   |           |            |           |   |    |
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|                          |                                  | 1501<br>acag ctatgaccct                 | agaatcatag | gcgcagcag | 39 |
|                          | <211><br><212>                   | DNA                                     |            |           |    |
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|                                | ouggua.        | acag coacgacete a   | cegaeggae | adggagg cc . | 39  |
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|  | <212><br><213> | DNA<br>Homo sapiens |            |           |   |    |
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|  | 12237          | nome suprems        |            |           |   |    |
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| jarj.                                    | 12137          | nomo saprens        |            |           |   |    |
| Part I                                   | <400>          | 1546                |            |           |   |    |
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| 10 10 10 10 10 10 10 10 10 10 10 10 10 1 |                |                     |            |           |   |    |
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| W.)                                      | <211>          | 39                  |            |           |   |    |
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|  | caggaa         | acag ctatgaccgg a   | aaatgagact | acgaacccg |   | 39 |
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| 1,1                                      | <210>          | 1548                |            |           |   |    |
|  | <211>          | 39                  |            |           |   |    |
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|  | <210>          | 1552            |            |            |     |
|  | <211>          | 39              |            |            |     |
|  |                | DNA .           |            |            |     |
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|  | caggaa         | acag ctatgaccga | ccatacaaca | attgggtgg  | 39  |
| <u></u> }=±  |                |                 |            |            |     |
| The state of the s |                |                 |            |            |     |
|  | <210>          | 1553            |            |            |     |
| f"I  | <211>          | 39              |            |            |     |
| H FE   | <212>          |                 |            |            |     |
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| LII.   | <400>          | 1553            |            |            | 2.0 |
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| The Term there have the  | 210            | 1554            |            |            |     |
| FI   |                | 1554            |            |            |     |
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| trans.   | <212>          |                 |            |            |     |
| Pris<br>Pris   | <213>          | Homo sapiens    |            |            |     |
|  | . 4 0 0 -      | 1554            |            |            |     |
| ļsi  | <400>          | 1554            | ++======== |            | 40  |
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|  | cayyaa         | acay clatyactic | gacagraggg | aaacccaac  | 5,5 |
|  |                |                 |            |            |     |
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|  | <211>          |                 |            |            |     |
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|  |                |                 | agtgggtast | t+c222cc2  | 39  |
|  | caygaa         | acag ctatgacccg | agrygoraat | ctgaadcca  | ככ  |

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|  |                | Homo sapiens            |            |           |     |
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|  |                | 1557<br>acag ctatgaccct | ccccatata  | tatatataa | 39  |
|  | Cayyaa         | acay clatgaceet         | ccccatgtc  | ccccaccc  | 33  |
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| 14.5   |                |                         |            |           |     |
| 171  | <210>          | 1560                    |            |           |     |
| ¥  | <211>          |                         |            |           |     |
| ļuz j  | <212>          |                         |            |           |     |
| TII  | <213>          | Homo sapiens            |            |           |     |
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|  | 33             | -                       | _          |           |     |
| ļa: Ł  | <210>          | 1561                    |            |           |     |
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|  | . 4 0 0 -      | 1561                    |            |           |     |
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| uz.þ.<br>uz.þ.   | <400>          | 1565                |            |           |   |    |
| The state of the s | caggaa         | acag ctatgacctg     | acgacttact | ttggatgcc |   | 39 |
| 11   | <210>          | 1566                |            |           |   |    |
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|   | 0.1.0     | 4500                                     |     |
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| ļasi:   |           |  |     |
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| 1   | <211>     | 18                                       |     |
| itas f  | <212>     |  |     |
| 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1   |           | bacteriophage m13                        |     |
| 18:1 B<br>.:= 8:  | 10101     | add of Lopinage Mild                     |     |
|   | <400>     | 1572                                     |     |
| 1,15  |           | aacga cggccagt                           | 18  |
| 41  | -3        |  | 10  |
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| FI  | <211>     | 18                                       |     |
| in i  | <212>     | DNA                                      |     |
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| True and the company of the company |           |  |     |
| int.  | <400>     | 1573                                     |     |
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|   |           |  |     |
|   | 04.0      | 4505                                     |     |
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|   | <213>     | Homo sapiens                             |     |
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|   | gacgca    | iggag tececateet egeettggge tacacagtet g | 41  |